

PyCAMA report generated by tropl2-proc

tropl2-proc

2024-12-28 (02:15)

1 Short Introduction

1.1 The list of parameters

You may want to keep the list given in table 1 at hand when viewing the results.

2 Definitions

The averages shown here are *unweighed* averages:

$$\bar{x} = \frac{1}{N} \sum_{i=1}^N x_i \quad (1)$$

with N the number of observations in the dataset.

The spread of the measurements is indicated with the variance $V(x)$, or rather the standard deviation $\sigma(x) = \sqrt{V(x)}$.

$$V(x) = \frac{1}{N-1} \sum_{i=1}^N (x_i - \bar{x})^2 \quad (2)$$

We also report the more robust statistics median, minimum, maximum, various percentiles and inter quartile range.

The median m is the value of parameter x for which half of the observations of x is smaller than m :

$$P(x \leq m) = P(x \geq m) = \int_{-\infty}^m f(x) dx = \frac{1}{2} \quad (3)$$

with $f(x)$ the probability density function.

The median is a special case of a percentile. Instead of $\frac{1}{2}$ in equation 3, other threshold values can be used. We report results for 1 %, 5 %, 10 %, 15.9 %, 25 %, 75 %, 84.1 %, 90 %, 95 % and 99 %. The inter quartile range is the difference between the 75 % and 25 % percentiles. Similarly the minimum and maximum values correspond to the 0 % and 100 % percentiles respectively.

For normally distributed parameters the mean and median are the same, while the $\mu \pm \sigma$ values and the 15.9 % and 84.1 % percentiles coincide.

To get a measure for the relation of one variable $x_{(k)}$ with another $x_{(l)}$, we calculate the covariance matrix C_{kl} .

$$C_{kl} = C(x_{(k)}, x_{(l)}) = \frac{1}{N-1} \sum_{i=1}^N (x_{(k),i} - \bar{x}_{(k)})(x_{(l),i} - \bar{x}_{(l)}) \quad (4)$$

Rather than a dimensionally dependent covariance, it is often easier to interpret a correlation matrix R_{kl} , a matrix of Pearson's r coefficients:

$$R_{kl} = R(x_{(k)}, x_{(l)}) = \frac{C_{kl}}{\sqrt{C_{kk}C_{ll}}} = \frac{C_{kl}}{\sqrt{V(x_k)V(x_l)}} \quad (5)$$

The diagonal elements of the covariance matrix are the variances of the elements, $V(x_{(k)}) = C_{kk}$ and obviously $R_{kk} = 1$.

Table 1: Parameterlist and basic statistics for the analysis

Variable	mean $\pm \sigma$	Count	Mode	IQR	Median	Minimum	Maximum
qa value [1]	0.907 ± 0.184	25002983	0.995	0.1000	1.000	0.350	1.000
cloud pressure crb [hPa]	779 ± 194	25002983	1.015×10^3	283	831	130	1.069×10^3
cloud pressure crb precision [hPa]	2.38 ± 9.39	25002983	0.750	1.11	0.520	9.766×10^{-4}	1.579×10^3
cloud fraction crb [1]	0.487 ± 0.385	25002983	0.996	0.861	0.421	0.0	1.000
cloud fraction crb precision [1]	$(1.581 \pm 7.104) \times 10^{-4}$	25002983	2.500×10^{-4}	5.740×10^{-5}	7.782×10^{-5}	1.846×10^{-9}	0.591
scene albedo [1]	0.468 ± 0.334	25002983	1.500×10^{-2}	0.607	0.441	-6.748×10^{-2}	4.69
scene albedo precision [1]	$(8.267 \pm 9.219) \times 10^{-5}$	25002983	2.500×10^{-4}	6.350×10^{-5}	5.409×10^{-5}	1.075×10^{-5}	1.688×10^{-2}
apparent scene pressure [hPa]	808 ± 172	25002983	1.008×10^3	260	856	130	1.046×10^3
apparent scene pressure precision [hPa]	0.932 ± 1.674	25002983	0.500	0.476	0.419	7.114×10^{-2}	68.3
chi square [1]	$(0.233 \pm 3.200) \times 10^5$	25002983	0.150	2.675×10^4	1.579×10^4	46.3	5.810×10^8
number of iterations [1]	3.35 ± 1.03	25002983	3.23	1.000	3.00	1.000	14.0
fluorescence [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(1.616 \pm 6.250) \times 10^{-9}$	25002983	7.500×10^{-10}	5.150×10^{-9}	1.367×10^{-9}	-1.752×10^{-6}	1.722×10^{-6}
fluorescence precision [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(1.742 \pm 0.716) \times 10^{-9}$	25002983	8.500×10^{-10}	1.066×10^{-9}	1.674×10^{-9}	3.764×10^{-10}	5.898×10^{-9}
chi square fluorescence [1]	$(0.527 \pm 1.006) \times 10^5$	25002983	1.750×10^3	4.982×10^4	1.634×10^4	86.1	5.268×10^6
degrees of freedom fluorescence [1]	6.00 ± 0.00	25002983	5.95	0.0	6.00	6.00	6.00
number of spectral points in retrieval [1]	50.0 ± 0.1	25002983	49.7	0.0	50.0	44.0	50.0
wavelength calibration offset [nm]	$(4.246 \pm 8.462) \times 10^{-3}$	25002983	4.400×10^{-3}	5.405×10^{-3}	4.274×10^{-3}	-0.105	0.196

Table 2: Percentile ranges

Variable	1 %	5 %	10 %	15.9 %	25 %	75 %	84.1 %	90 %	95 %	99 %
qa value [1]	0.500	0.500	0.500	0.500	0.900	1.000	1.000	1.000	1.000	1.000
cloud pressure crb [hPa]	255	393	486	575	656	938	970	989	1.008×10^3	1.019×10^3
cloud pressure crb precision [hPa]	0.165	0.228	0.248	0.267	0.301	1.41	2.51	4.37	9.02	32.0
cloud fraction crb [1]	4.019×10^{-4}	1.127×10^{-2}	2.580×10^{-2}	4.880×10^{-2}	0.101	0.962	1.000	1.000	1.000	1.000
cloud fraction crb precision [1]	2.025×10^{-5}	2.381×10^{-5}	2.687×10^{-5}	3.144×10^{-5}	4.260×10^{-5}	1.000×10^{-4}	1.416×10^{-4}	2.565×10^{-4}	5.965×10^{-4}	1.639×10^{-3}
scene albedo [1]	8.605×10^{-3}	2.160×10^{-2}	4.102×10^{-2}	7.389×10^{-2}	0.153	0.760	0.876	0.928	0.977	1.12
scene albedo precision [1]	1.316×10^{-5}	1.583×10^{-5}	1.950×10^{-5}	2.432×10^{-5}	3.252×10^{-5}	9.602×10^{-5}	1.268×10^{-4}	1.658×10^{-4}	2.509×10^{-4}	4.802×10^{-4}
apparent scene pressure [hPa]	345	465	556	624	690	950	977	994	1.010×10^3	1.019×10^3
apparent scene pressure precision [hPa]	0.208	0.234	0.252	0.269	0.298	0.775	1.21	1.95	3.52	8.35
chi square [1]	288	712	1.544×10^3	3.021×10^3	5.692×10^3	3.244×10^4	4.232×10^4	5.068×10^4	6.091×10^4	8.147×10^4
number of iterations [1]	2.00	2.00	2.00	3.00	3.00	4.00	4.00	4.00	5.00	7.00
fluorescence [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	-1.385×10^{-8}	-6.302×10^{-9}	-3.713×10^{-9}	-2.249×10^{-9}	-9.280×10^{-10}	4.222×10^{-9}	6.024×10^{-9}	7.770×10^{-9}	1.028×10^{-8}	1.573×10^{-8}
fluorescence precision [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	6.914×10^{-10}	7.963×10^{-10}	8.717×10^{-10}	9.623×10^{-10}	1.137×10^{-9}	2.204×10^{-9}	2.499×10^{-9}	2.669×10^{-9}	3.007×10^{-9}	3.694×10^{-9}
chi square fluorescence [1]	426	1.085×10^3	1.740×10^3	2.489×10^3	4.175×10^3	5.399×10^4	9.060×10^4	1.394×10^5	2.337×10^5	5.008×10^5
degrees of freedom fluorescence [1]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
number of spectral points in retrieval [1]	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
wavelength calibration offset [nm]	-2.330×10^{-2}	-8.203×10^{-3}	-3.135×10^{-3}	-5.105×10^{-4}	1.546×10^{-3}	6.951×10^{-3}	8.971×10^{-3}	1.160×10^{-2}	1.669×10^{-2}	3.164×10^{-2}

Table 3: Parameterlist and basic statistics for the analysis for observations in the northern hemisphere

Variable	mean $\pm \sigma$	Count	IQR	Median	Minimum	Maximum	25 % percentile	75 % percentile
qa value [1]	0.989 ± 0.055	9745163	0.0	1.000	0.350	1.000	1.000	1.000
cloud pressure crb [hPa]	766 ± 213	9745163	329	833	130	1.069×10^3	612	941
cloud pressure crb precision [hPa]	3.32 ± 11.18	9745163	1.92	0.886	1.648×10^{-3}	1.579×10^3	0.443	2.36
cloud fraction crb [1]	0.372 ± 0.346	9745163	0.586	0.250	0.0	1.000	6.207×10^{-2}	0.648
cloud fraction crb precision [1]	$(1.686 \pm 9.626) \times 10^{-4}$	9745163	9.475×10^{-5}	8.906×10^{-5}	2.723×10^{-8}	0.591	4.791×10^{-5}	1.427×10^{-4}
scene albedo [1]	0.392 ± 0.302	9745163	0.481	0.348	-6.604×10^{-3}	4.69	0.125	0.606
scene albedo precision [1]	$(9.328 \pm 10.316) \times 10^{-5}$	9745163	7.368×10^{-5}	5.740×10^{-5}	1.162×10^{-5}	5.736×10^{-3}	3.532×10^{-5}	1.090×10^{-4}
apparent scene pressure [hPa]	806 ± 183	9745163	260	864	130	1.046×10^3	693	953
apparent scene pressure precision [hPa]	1.16 ± 1.91	9745163	0.635	0.541	7.114×10^{-2}	68.3	0.372	1.01
chi square [1]	$(0.139 \pm 0.814) \times 10^5$	9745163	1.508×10^4	9.908×10^3	46.3	6.337×10^7	3.841×10^3	1.893×10^4
number of iterations [1]	3.35 ± 1.05	9745163	1.000	3.00	1.000	14.0	3.00	4.00
fluorescence [mol s ⁻¹ m ⁻² nm ⁻¹ sr ⁻¹]	$(7.684 \pm 43.846) \times 10^{-10}$	9745163	3.497×10^{-9}	9.333×10^{-10}	-1.023×10^{-6}	1.057×10^{-6}	-7.706×10^{-10}	2.726×10^{-9}
fluorescence precision [mol s ⁻¹ m ⁻² nm ⁻¹ sr ⁻¹]	$(1.457 \pm 0.602) \times 10^{-9}$	9745163	8.462×10^{-10}	1.342×10^{-9}	3.764×10^{-10}	5.493×10^{-9}	9.618×10^{-10}	1.808×10^{-9}
chi square fluorescence [1]	$(0.473 \pm 0.982) \times 10^5$	9745163	4.279×10^4	1.262×10^4	86.1	2.209×10^6	3.311×10^3	4.610×10^4
degrees of freedom fluorescence [1]	6.00 ± 0.00	9745163	0.0	6.00	6.00	6.00	6.00	6.00
number of spectral points in retrieval [1]	50.0 ± 0.1	9745163	0.0	50.0	48.0	50.0	50.0	50.0
wavelength calibration offset [nm]	$(4.364 \pm 9.567) \times 10^{-3}$	9745163	6.766×10^{-3}	4.322×10^{-3}	-8.176×10^{-2}	9.178×10^{-2}	9.499×10^{-4}	7.716×10^{-3}

Table 4: Parameterlist and basic statistics for the analysis for observations in the southern hemisphere

Variable	mean $\pm \sigma$	Count	IQR	Median	Minimum	Maximum	25 % percentile	75 % percentile
qa value [1]	0.854 ± 0.216	15257820	0.500	1.000	0.350	1.000	0.500	1.000
cloud pressure crb [hPa]	788 ± 179	15257820	269	829	130	1.030×10^3	667	936
cloud pressure crb precision [hPa]	1.79 ± 7.99	15257820	0.646	0.379	9.766×10^{-4}	1.278×10^3	0.272	0.918
cloud fraction crb [1]	0.560 ± 0.391	15257820	0.853	0.577	0.0	1.000	0.147	1.000
cloud fraction crb precision [1]	$(1.513 \pm 4.848) \times 10^{-4}$	15257820	6.011×10^{-5}	7.011×10^{-5}	1.846×10^{-9}	0.110	3.990×10^{-5}	1.000×10^{-4}
scene albedo [1]	0.516 ± 0.344	15257820	0.668	0.528	-6.748×10^{-2}	3.67	0.178	0.846
scene albedo precision [1]	$(7.590 \pm 8.373) \times 10^{-5}$	15257820	5.977×10^{-5}	5.225×10^{-5}	1.075×10^{-5}	1.688×10^{-2}	3.067×10^{-5}	9.045×10^{-5}
apparent scene pressure [hPa]	809 ± 164	15257820	258	850	130	1.030×10^3	689	947
apparent scene pressure precision [hPa]	0.788 ± 1.483	15257820	0.356	0.356	0.100	67.5	0.275	0.631
chi square [1]	$(0.294 \pm 4.043) \times 10^5$	15257820	3.333×10^4	2.280×10^4	63.8	5.810×10^8	8.123×10^3	4.145×10^4
number of iterations [1]	3.36 ± 1.02	15257820	1.000	3.00	1.000	14.0	3.00	4.00
fluorescence [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(2.158 \pm 7.140) \times 10^{-9}$	15257820	6.495×10^{-9}	1.900×10^{-9}	-1.752×10^{-6}	1.722×10^{-6}	-1.059×10^{-9}	5.436×10^{-9}
fluorescence precision [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(1.925 \pm 0.723) \times 10^{-9}$	15257820	1.100×10^{-9}	1.940×10^{-9}	4.004×10^{-10}	5.898×10^{-9}	1.333×10^{-9}	2.432×10^{-9}
chi square fluorescence [1]	$(0.561 \pm 1.020) \times 10^5$	15257820	5.405×10^4	1.885×10^4	112	5.268×10^6	4.911×10^3	5.896×10^4
degrees of freedom fluorescence [1]	6.00 ± 0.00	15257820	0.0	6.00	6.00	6.00	6.00	6.00
number of spectral points in retrieval [1]	50.0 ± 0.1	15257820	0.0	50.0	44.0	50.0	50.0	50.0
wavelength calibration offset [nm]	$(4.171 \pm 7.672) \times 10^{-3}$	15257820	4.696×10^{-3}	4.253×10^{-3}	-0.105	0.196	1.859×10^{-3}	6.555×10^{-3}

Table 5: Parameterlist and basic statistics for the analysis for observations over water

Variable	mean $\pm \sigma$	Count	IQR	Median	Minimum	Maximum	25 % percentile	75 % percentile
qa value [1]	0.981 ± 0.049	15807927	0.0	1.000	0.350	1.000	1.000	1.000
cloud pressure crb [hPa]	810 ± 189	15807927	246	874	130	1.069×10^3	708	954
cloud pressure crb precision [hPa]	2.46 ± 9.84	15807927	1.15	0.598	9.766×10^{-4}	911	0.338	1.49
cloud fraction crb [1]	0.390 ± 0.336	15807927	0.591	0.297	0.0	1.000	7.839×10^{-2}	0.669
cloud fraction crb precision [1]	$(9.790 \pm 29.652) \times 10^{-5}$	15807927	5.782×10^{-5}	5.280×10^{-5}	1.846×10^{-9}	0.110	3.143×10^{-5}	8.925×10^{-5}
scene albedo [1]	0.341 ± 0.290	15807927	0.503	0.269	-6.748×10^{-2}	4.69	7.395×10^{-2}	0.577
scene albedo precision [1]	$(6.405 \pm 8.436) \times 10^{-5}$	15807927	4.129×10^{-5}	4.302×10^{-5}	1.075×10^{-5}	1.688×10^{-2}	2.441×10^{-5}	6.571×10^{-5}
apparent scene pressure [hPa]	831 ± 175	15807927	218	887	130	1.036×10^3	747	966
apparent scene pressure precision [hPa]	1.24 ± 2.03	15807927	0.861	0.540	7.114×10^{-2}	68.3	0.325	1.19
chi square [1]	$(0.185 \pm 3.834) \times 10^5$	15807927	2.329×10^4	1.050×10^4	46.3	5.810×10^8	3.151×10^3	2.644×10^4
number of iterations [1]	2.97 ± 0.81	15807927	0.0	3.00	1.000	14.0	3.00	3.00
fluorescence [mol s ⁻¹ m ⁻² nm ⁻¹ sr ⁻¹]	$(6.296 \pm 57.080) \times 10^{-10}$	15807927	4.451×10^{-9}	4.226×10^{-10}	-1.387×10^{-6}	1.207×10^{-6}	-1.620×10^{-9}	2.831×10^{-9}
fluorescence precision [mol s ⁻¹ m ⁻² nm ⁻¹ sr ⁻¹]	$(1.667 \pm 0.746) \times 10^{-9}$	15807927	1.154×10^{-9}	1.519×10^{-9}	3.764×10^{-10}	5.493×10^{-9}	1.024×10^{-9}	2.179×10^{-9}
chi square fluorescence [1]	$(0.529 \pm 0.999) \times 10^5$	15807927	5.003×10^4	1.806×10^4	86.1	2.419×10^6	5.313×10^3	5.534×10^4
degrees of freedom fluorescence [1]	6.00 ± 0.00	15807927	0.0	6.00	6.00	6.00	6.00	6.00
number of spectral points in retrieval [1]	50.0 ± 0.1	15807927	0.0	50.0	48.0	50.0	50.0	50.0
wavelength calibration offset [nm]	$(4.180 \pm 9.998) \times 10^{-3}$	15807927	6.989×10^{-3}	4.228×10^{-3}	-0.105	0.196	6.747×10^{-4}	7.664×10^{-3}

Table 6: Parameterlist and basic statistics for the analysis for observations over land

Variable	mean $\pm \sigma$	Count	IQR	Median	Minimum	Maximum	25 % percentile	75 % percentile
qa value [1]	0.732 ± 0.252	7463094	0.500	0.500	0.350	1.000	0.500	1.000
cloud pressure crb [hPa]	727 ± 182	7463094	241	725	130	1.051×10^3	632	873
cloud pressure crb precision [hPa]	2.13 ± 8.42	7463094	0.837	0.336	1.648×10^{-3}	1.278×10^3	0.261	1.10
cloud fraction crb [1]	0.693 ± 0.403	7463094	0.769	1.000	0.0	1.000	0.231	1.000
cloud fraction crb precision [1]	$(2.648 \pm 9.128) \times 10^{-4}$	7463094	2.789×10^{-5}	1.000×10^{-4}	2.723×10^{-8}	0.343	1.000×10^{-4}	1.279×10^{-4}
scene albedo [1]	0.717 ± 0.282	7463094	0.460	0.822	2.506×10^{-3}	3.67	0.474	0.934
scene albedo precision [1]	$(1.151 \pm 0.929) \times 10^{-4}$	7463094	7.295×10^{-5}	9.165×10^{-5}	1.380×10^{-5}	1.848×10^{-3}	5.819×10^{-5}	1.311×10^{-4}
apparent scene pressure [hPa]	764 ± 150	7463094	243	759	130	1.036×10^3	653	897
apparent scene pressure precision [hPa]	0.381 ± 0.186	7463094	0.160	0.327	0.160	22.4	0.270	0.430
chi square [1]	$(0.341 \pm 1.530) \times 10^5$	7463094	2.950×10^4	2.653×10^4	189	1.818×10^8	1.455×10^4	4.405×10^4
number of iterations [1]	4.07 ± 1.00	7463094	0.0	4.00	1.000	14.0	4.00	4.00
fluorescence [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(3.656 \pm 6.675) \times 10^{-9}$	7463094	4.962×10^{-9}	3.390×10^{-9}	-1.752×10^{-6}	1.459×10^{-6}	1.242×10^{-9}	6.205×10^{-9}
fluorescence precision [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(1.909 \pm 0.629) \times 10^{-9}$	7463094	8.507×10^{-10}	1.897×10^{-9}	3.989×10^{-10}	5.898×10^{-9}	1.450×10^{-9}	2.301×10^{-9}
chi square fluorescence [1]	$(0.443 \pm 0.908) \times 10^5$	7463094	3.853×10^4	9.797×10^3	121	1.900×10^6	2.790×10^3	4.132×10^4
degrees of freedom fluorescence [1]	6.00 ± 0.00	7463094	0.0	6.00	6.00	6.00	6.00	6.00
number of spectral points in retrieval [1]	50.0 ± 0.1	7463094	0.0	50.0	48.0	50.0	50.0	50.0
wavelength calibration offset [nm]	$(4.286 \pm 4.144) \times 10^{-3}$	7463094	3.363×10^{-3}	4.282×10^{-3}	-8.218×10^{-2}	7.073×10^{-2}	2.600×10^{-3}	5.963×10^{-3}

3 Granule outlines

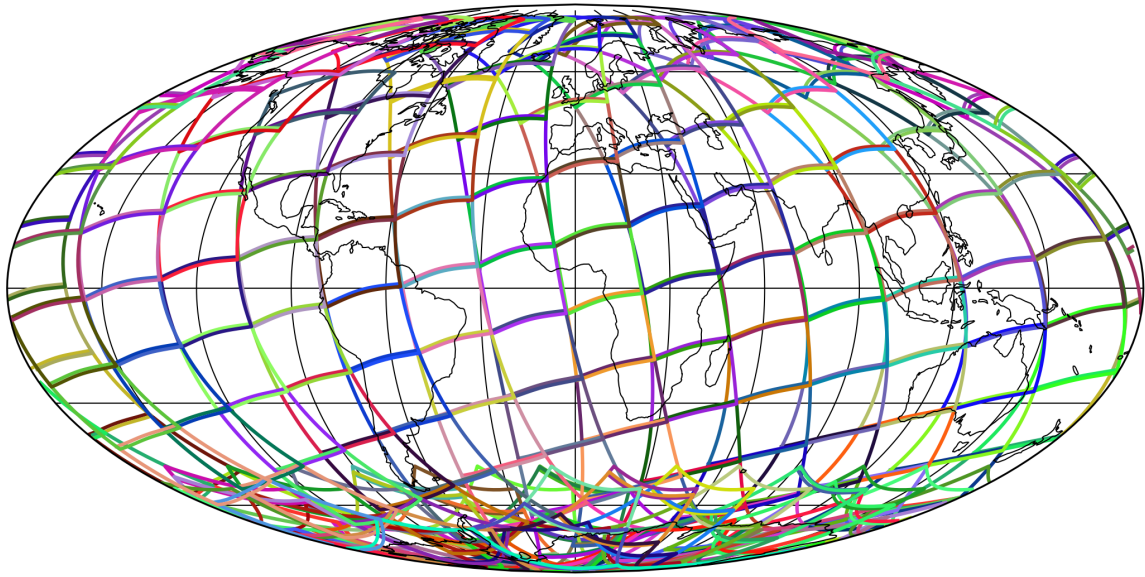


Figure 1: Outline of the granules.

4 Input data monitoring

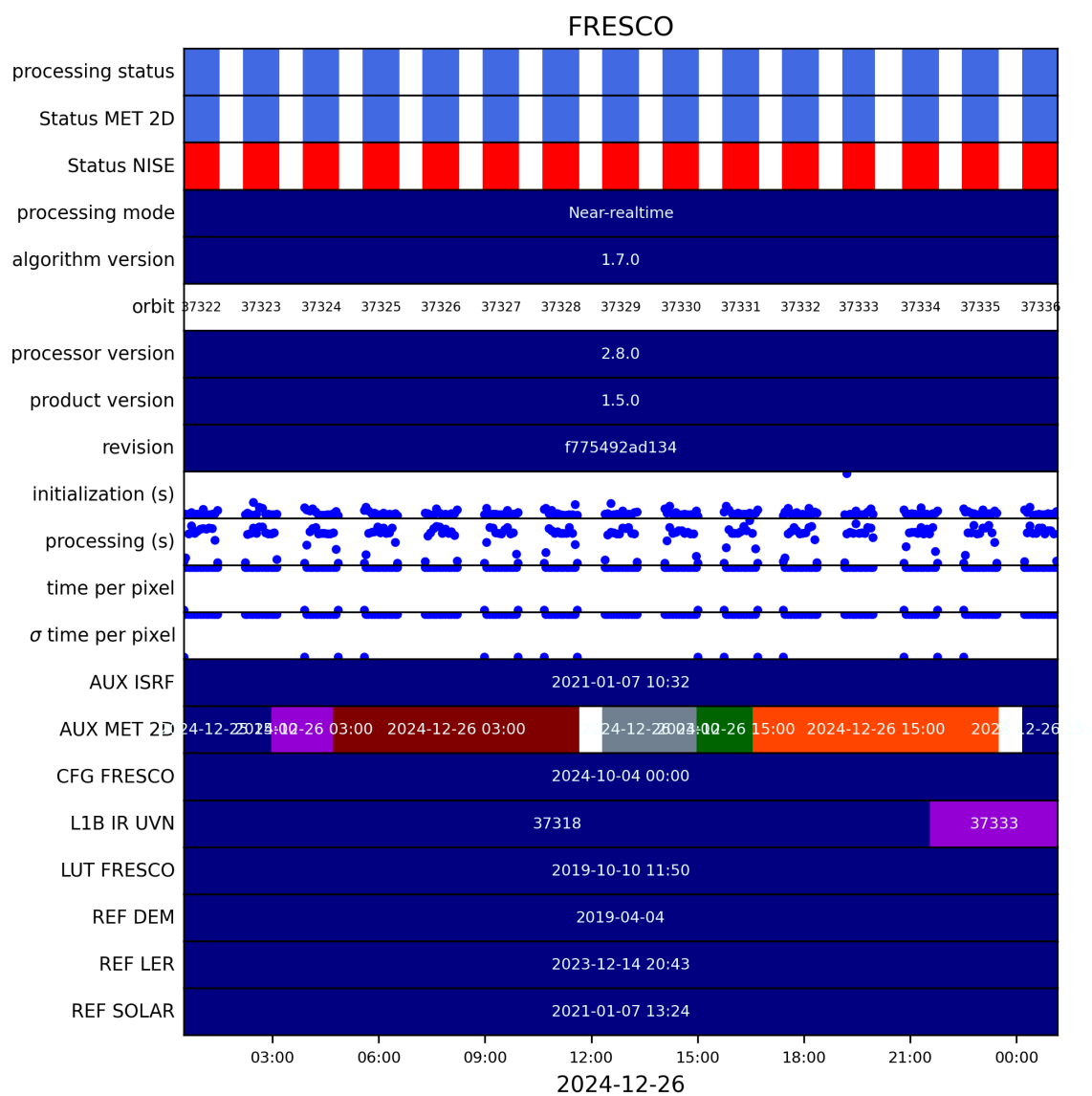


Figure 2: Input data per granule

5 Warnings and errors

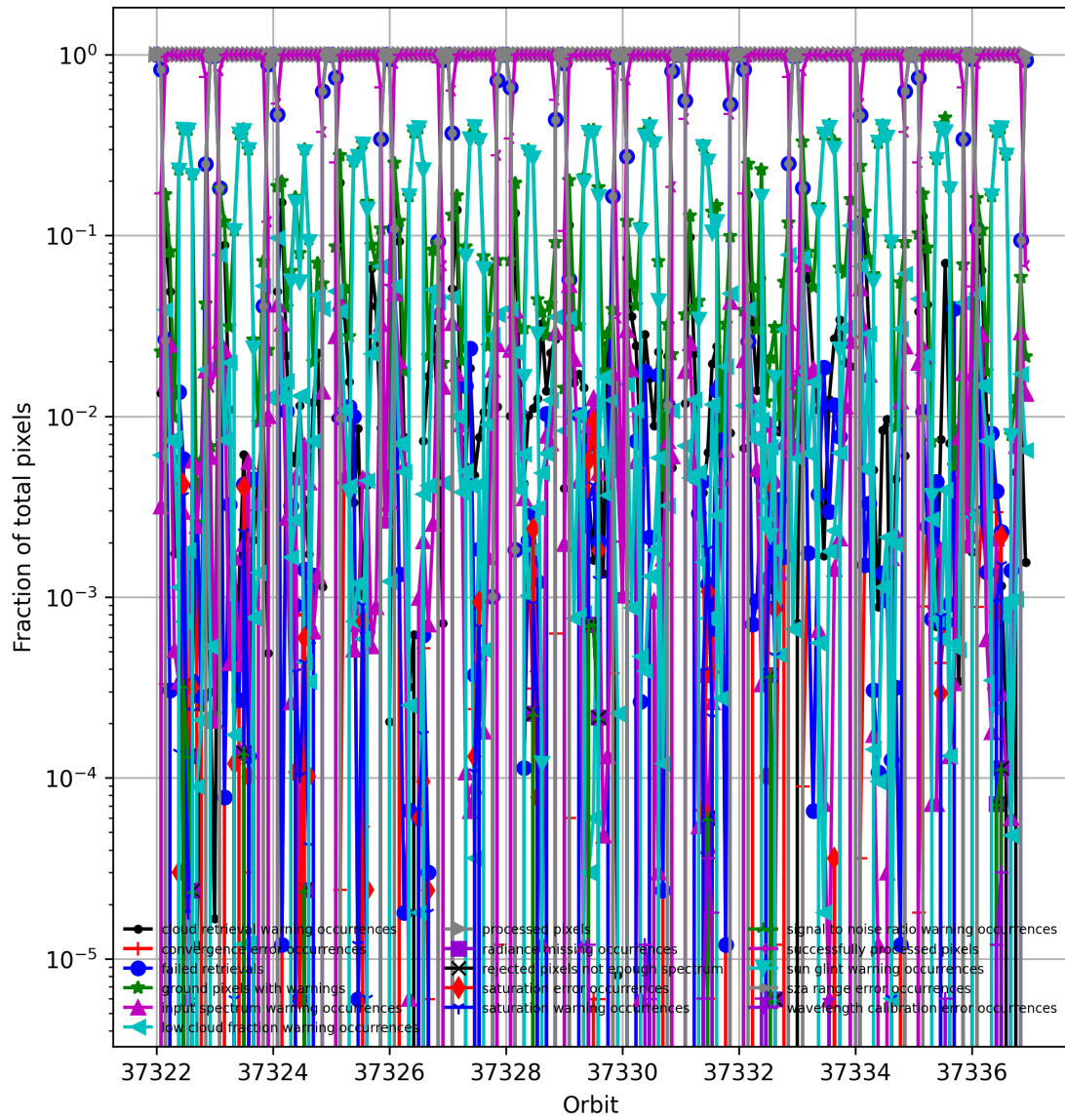


Figure 3: Fraction of pixels with specific warnings and errors during processing

6 World maps

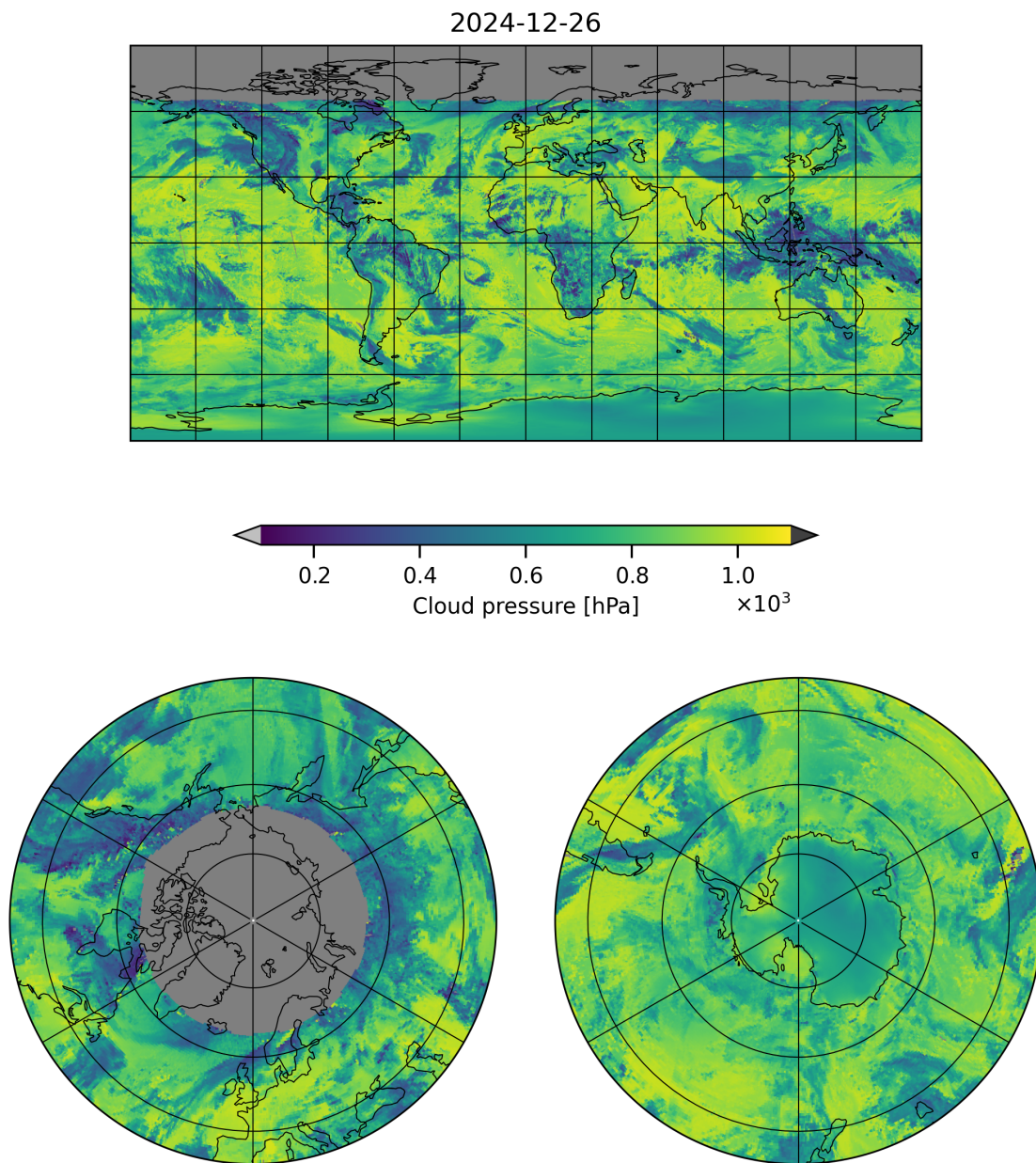


Figure 4: Map of “Cloud pressure” for 2024-12-26 to 2024-12-27

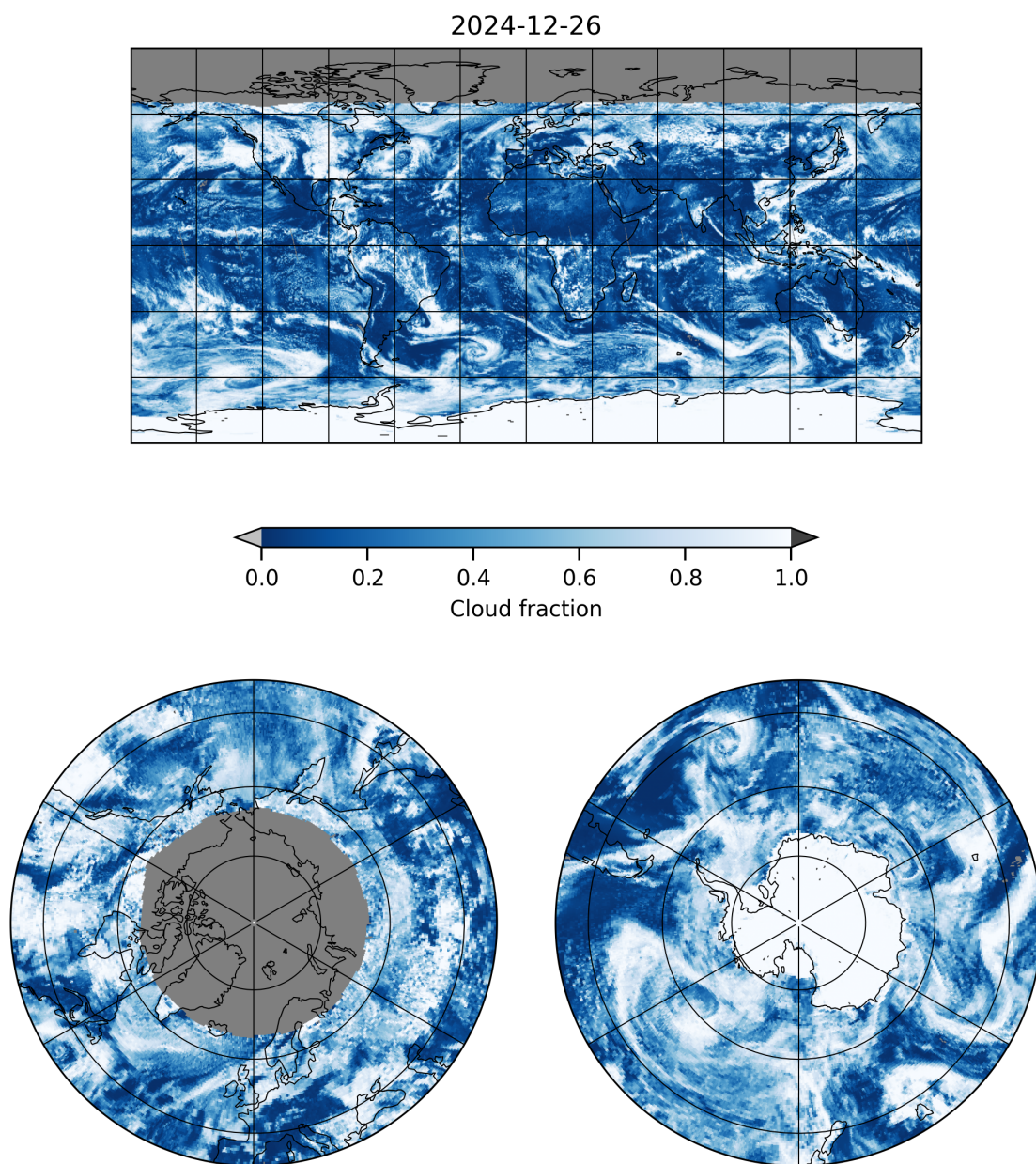


Figure 5: Map of “Cloud fraction” for 2024-12-26 to 2024-12-27

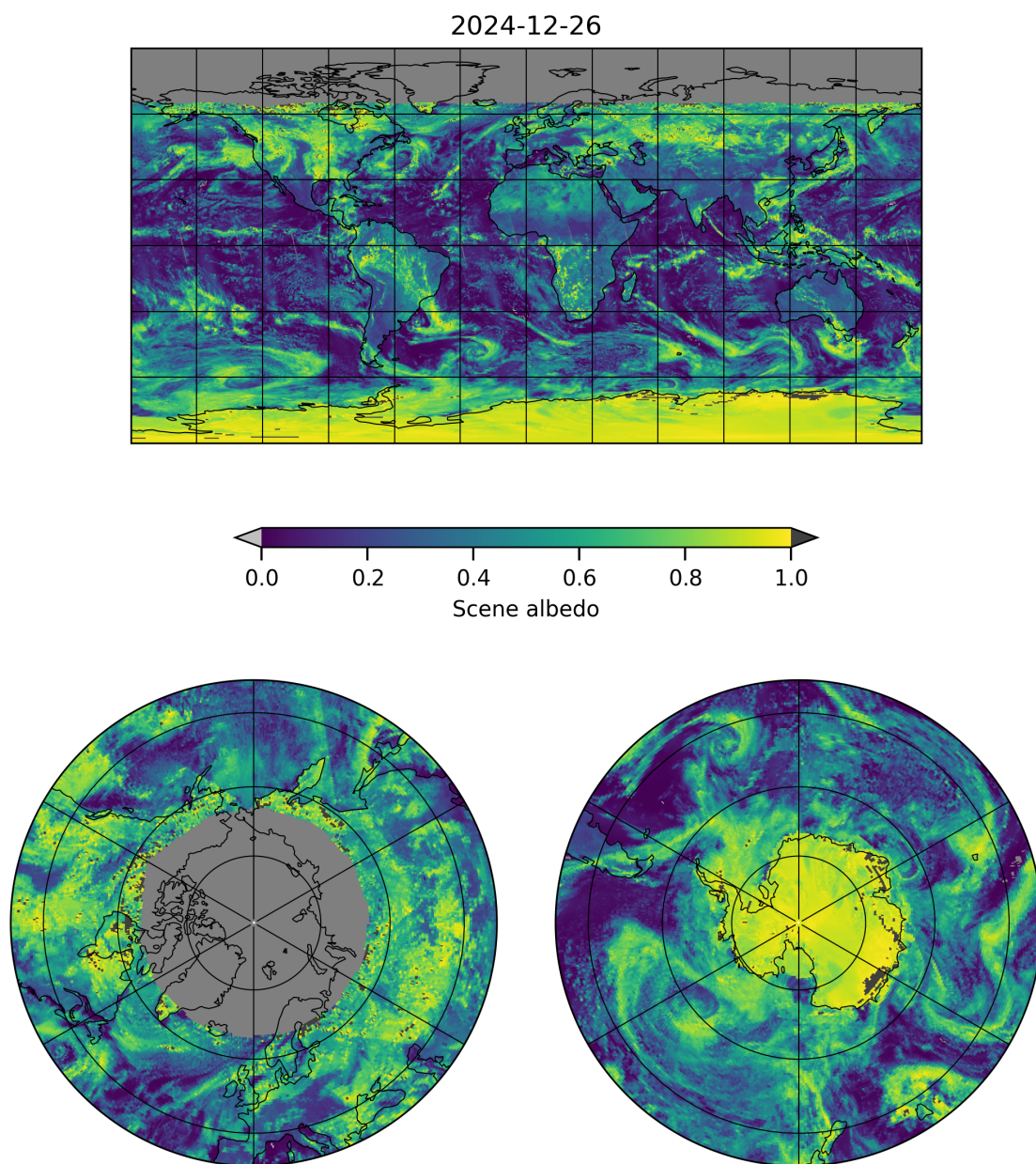


Figure 6: Map of “Scene albedo” for 2024-12-26 to 2024-12-27

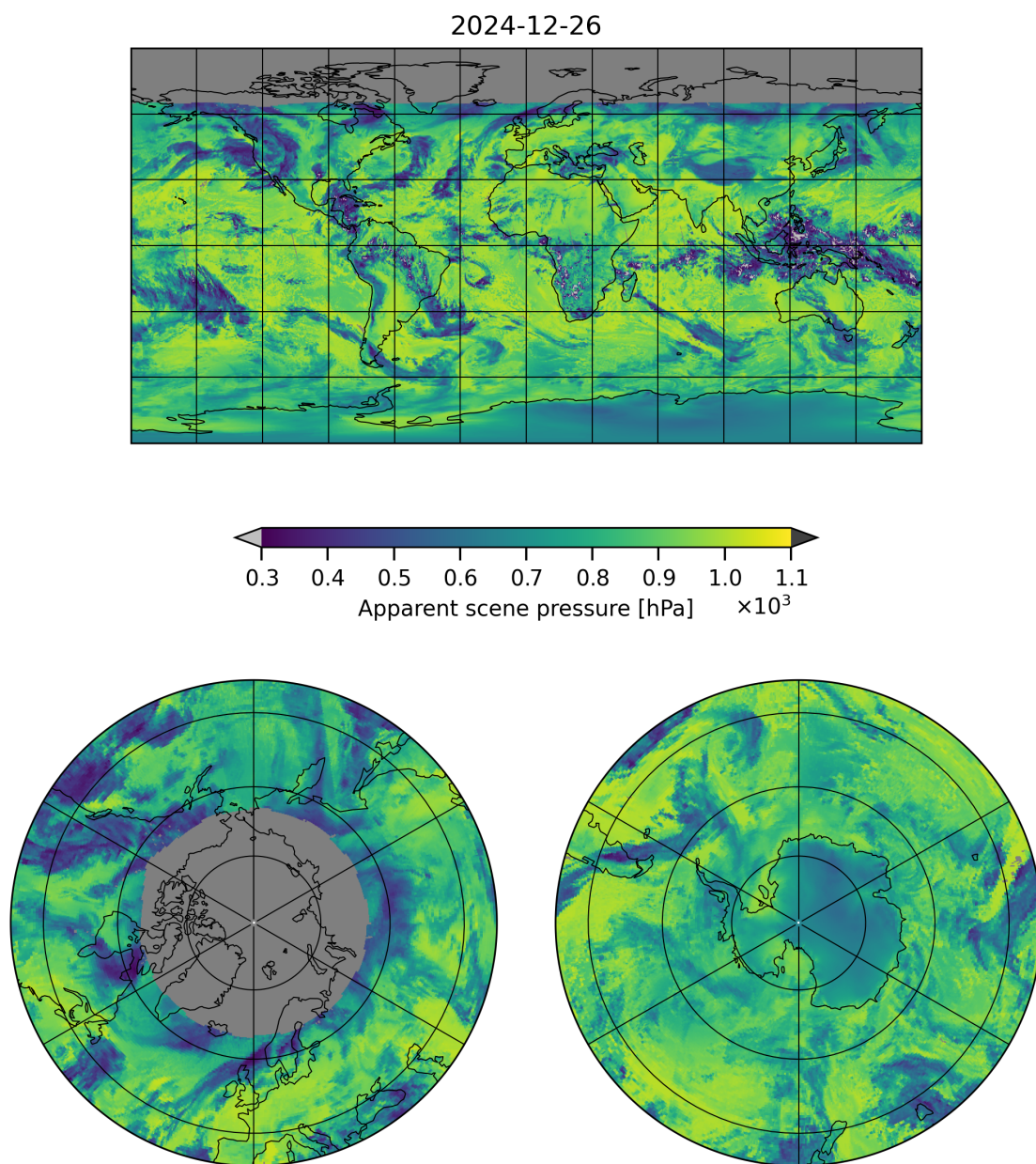


Figure 7: Map of “Apparent scene pressure” for 2024-12-26 to 2024-12-27

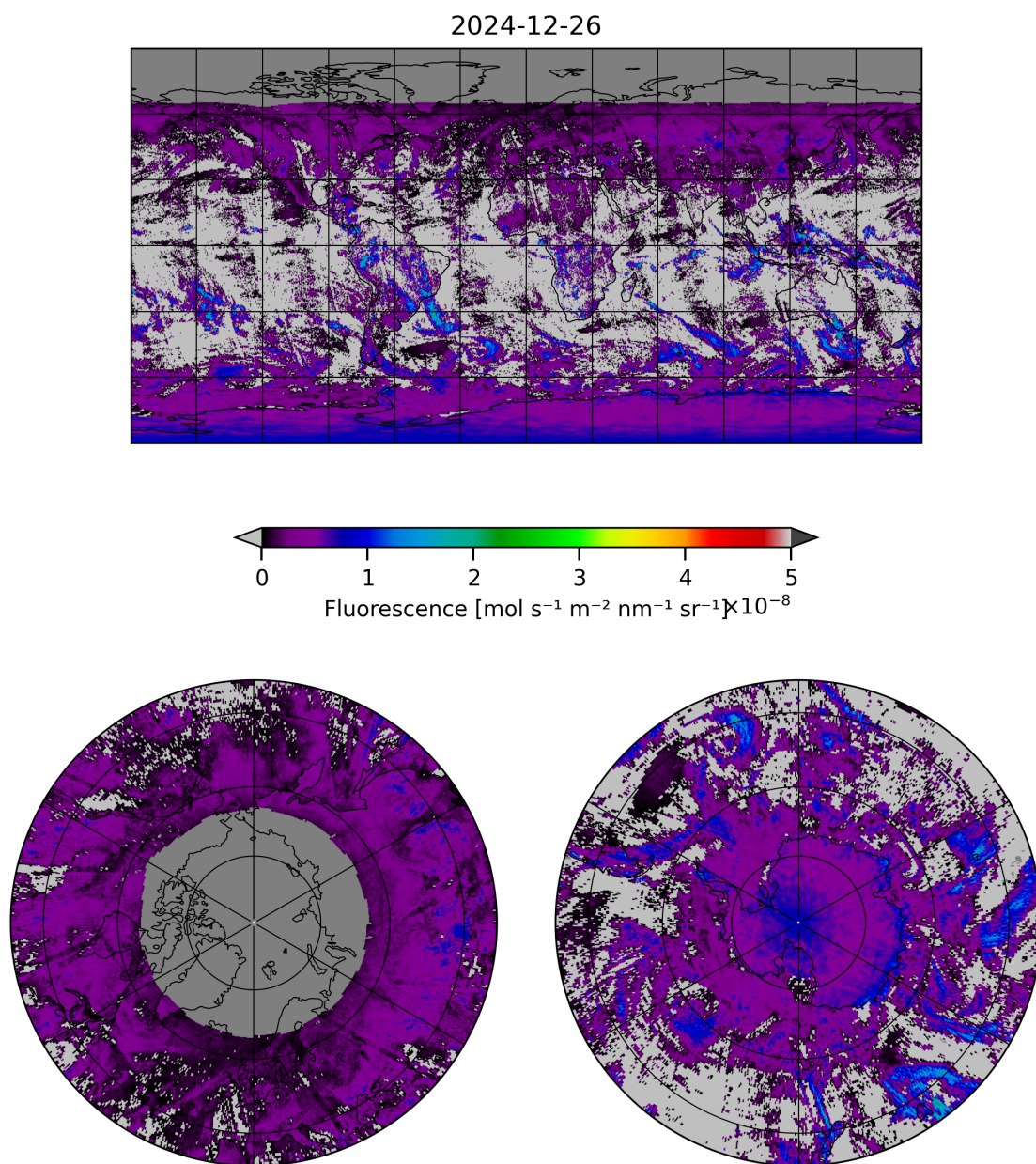


Figure 8: Map of “Fluorescence” for 2024-12-26 to 2024-12-27

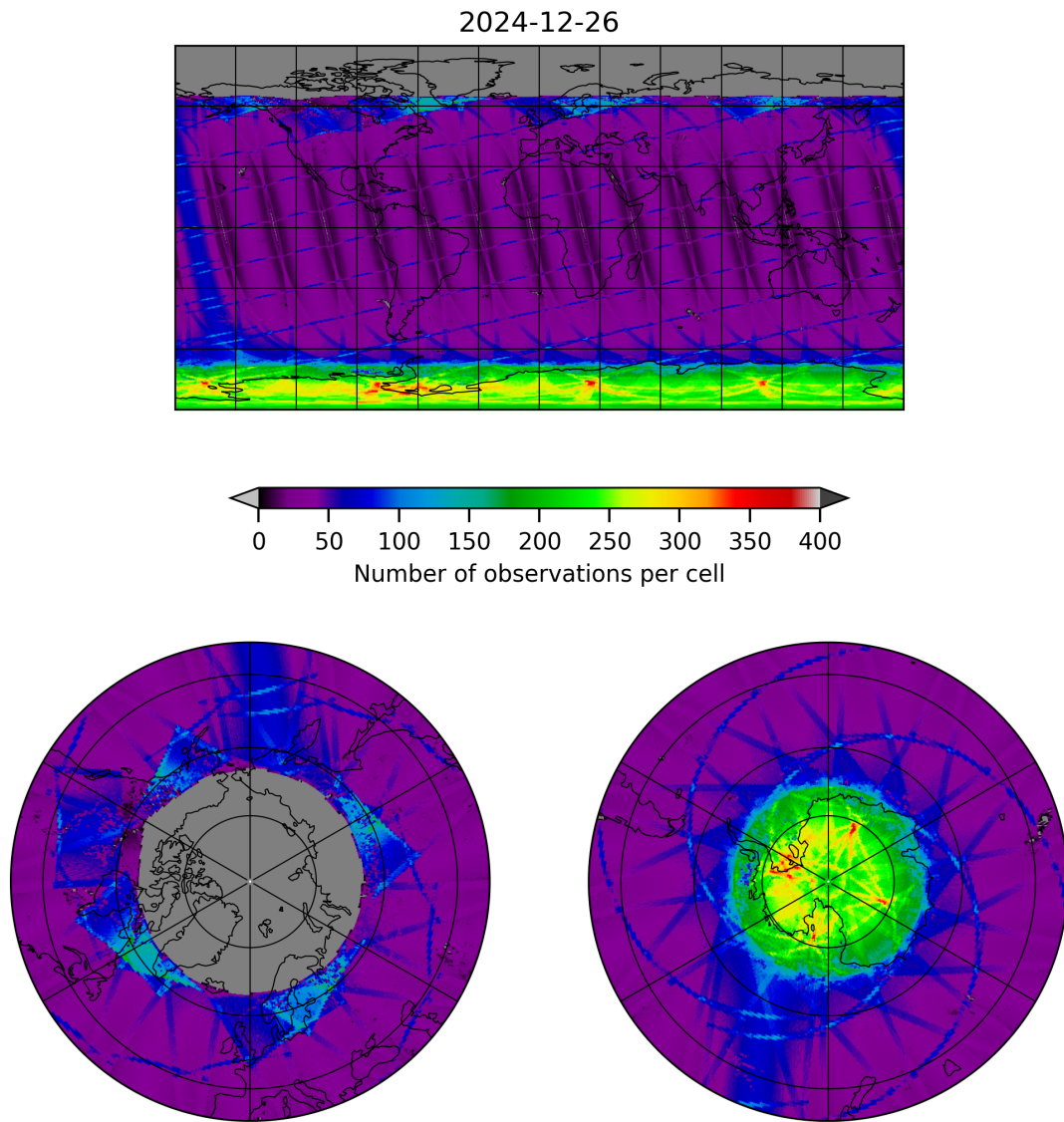


Figure 9: Map of the number of observations for 2024-12-26 to 2024-12-27

7 Zonal average

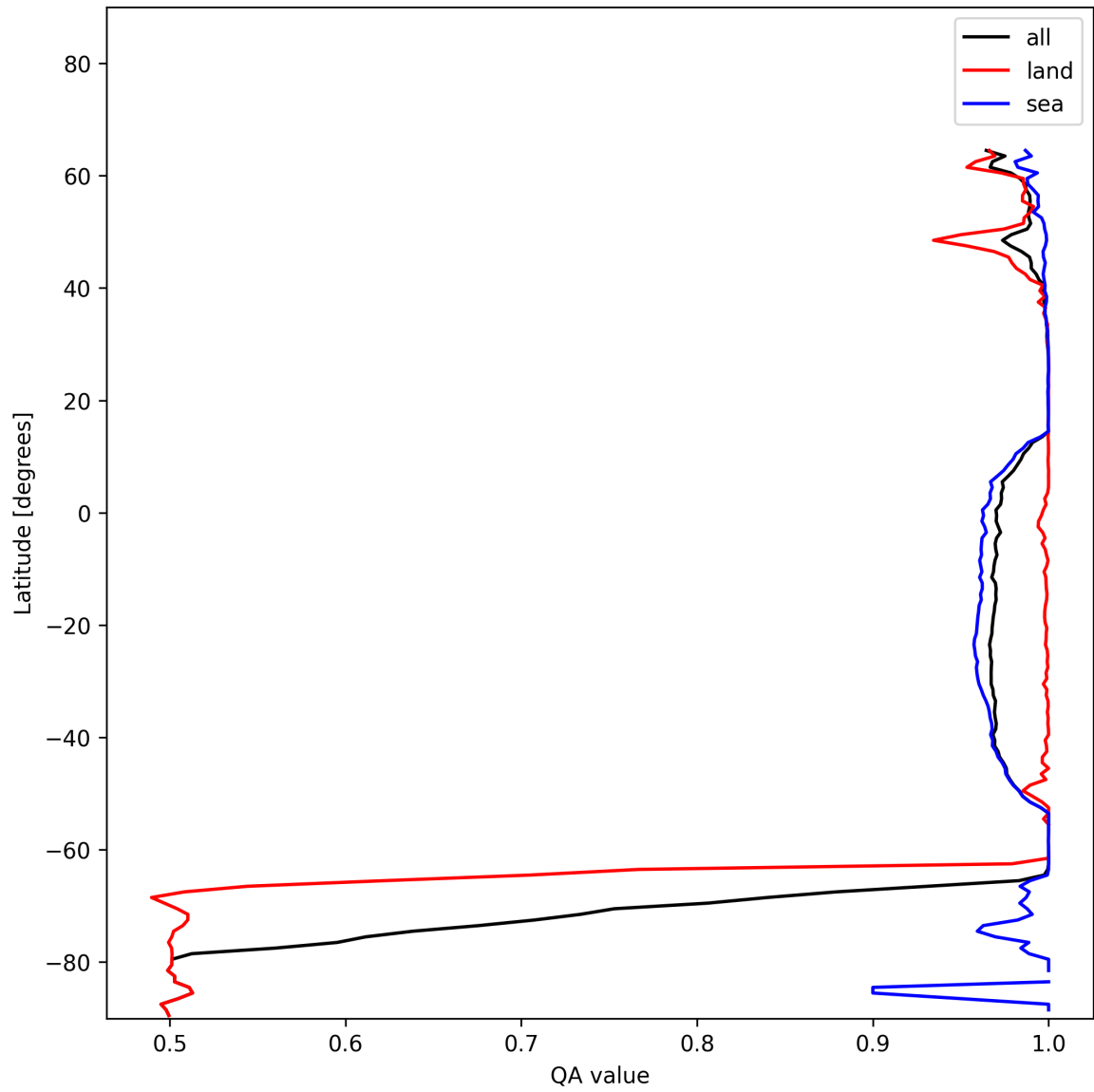


Figure 10: Zonal average of “QA value” for 2024-12-26 to 2024-12-27.

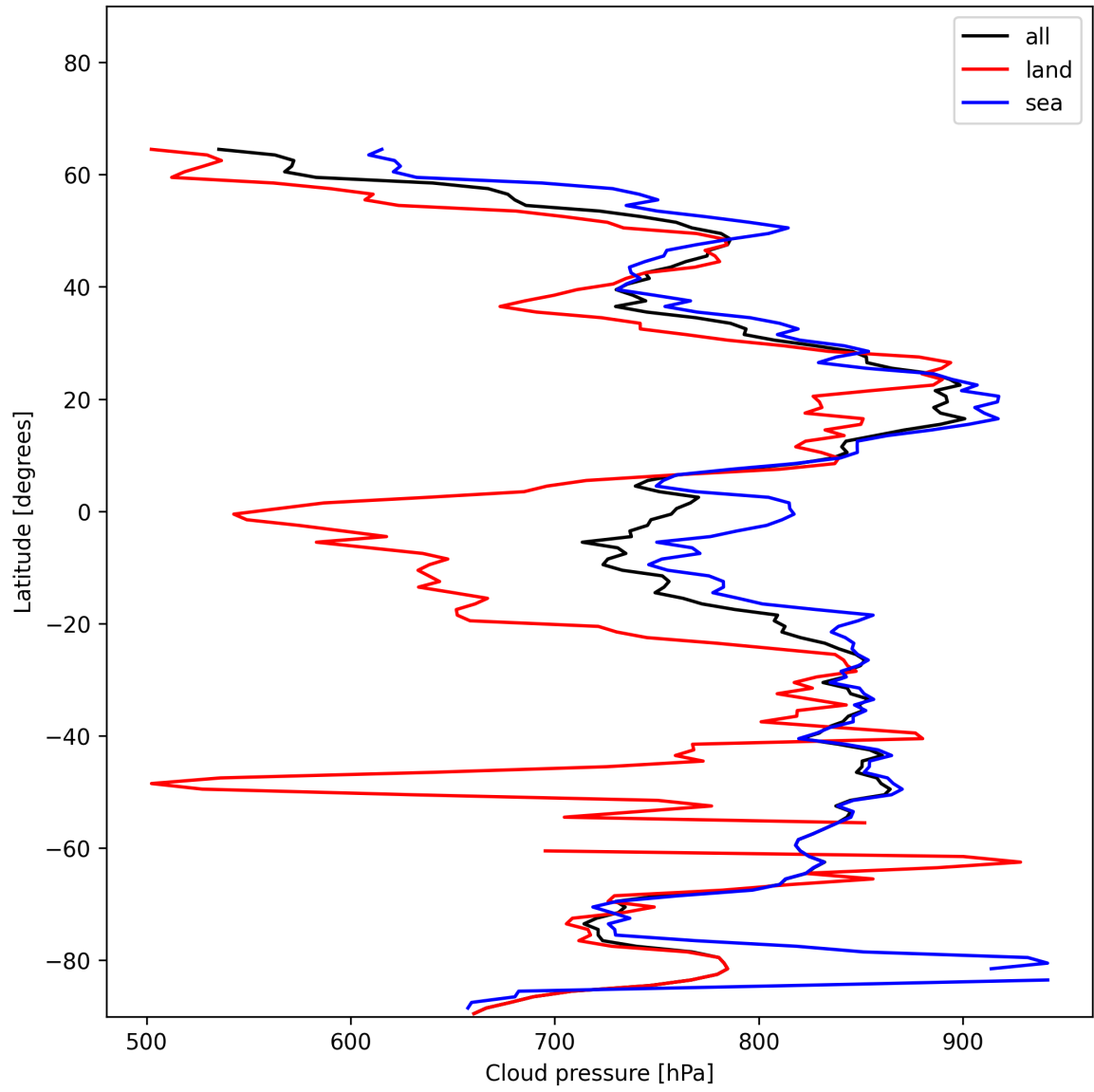


Figure 11: Zonal average of “Cloud pressure” for 2024-12-26 to 2024-12-27.

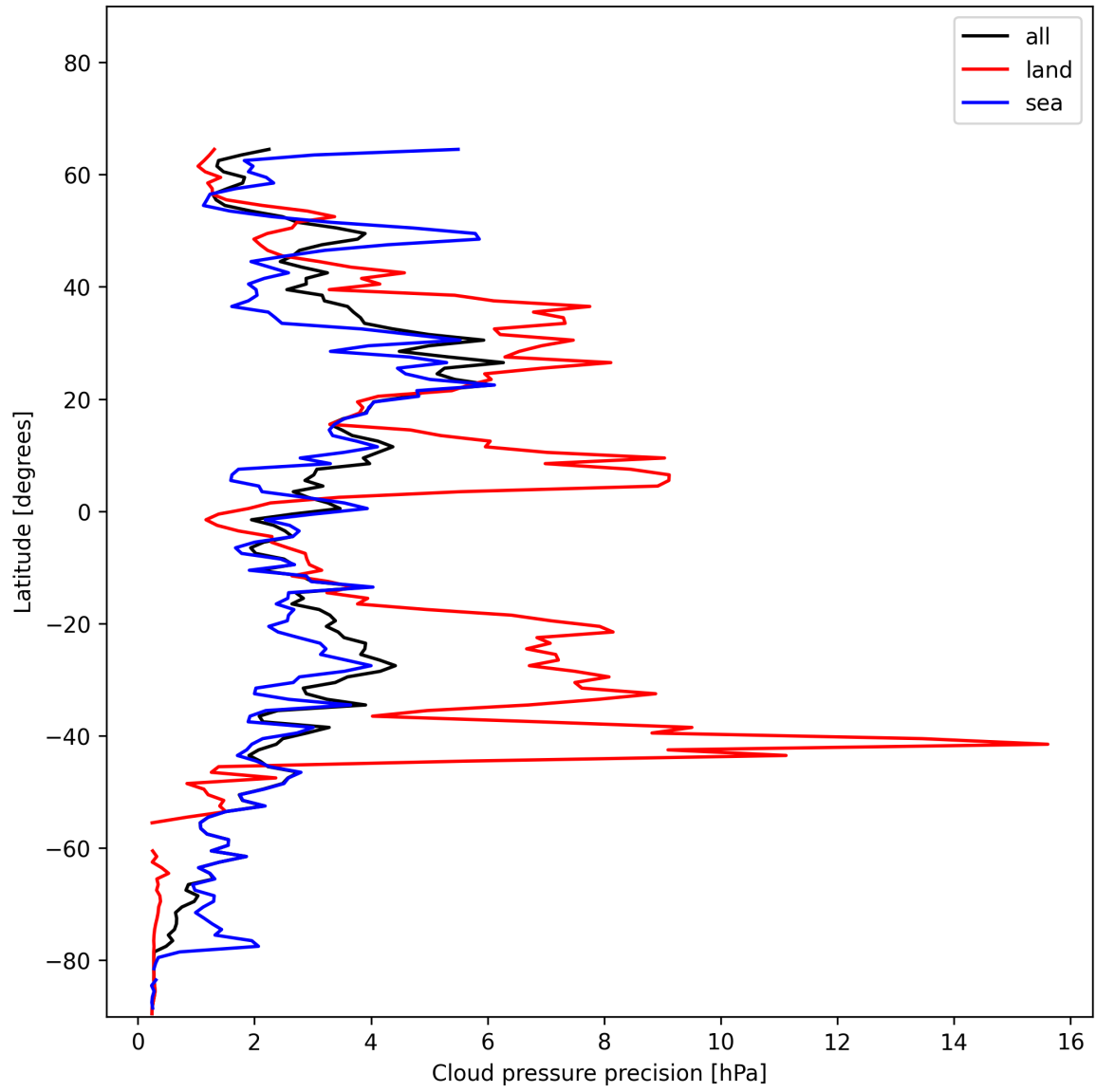


Figure 12: Zonal average of “Cloud pressure precision” for 2024-12-26 to 2024-12-27.

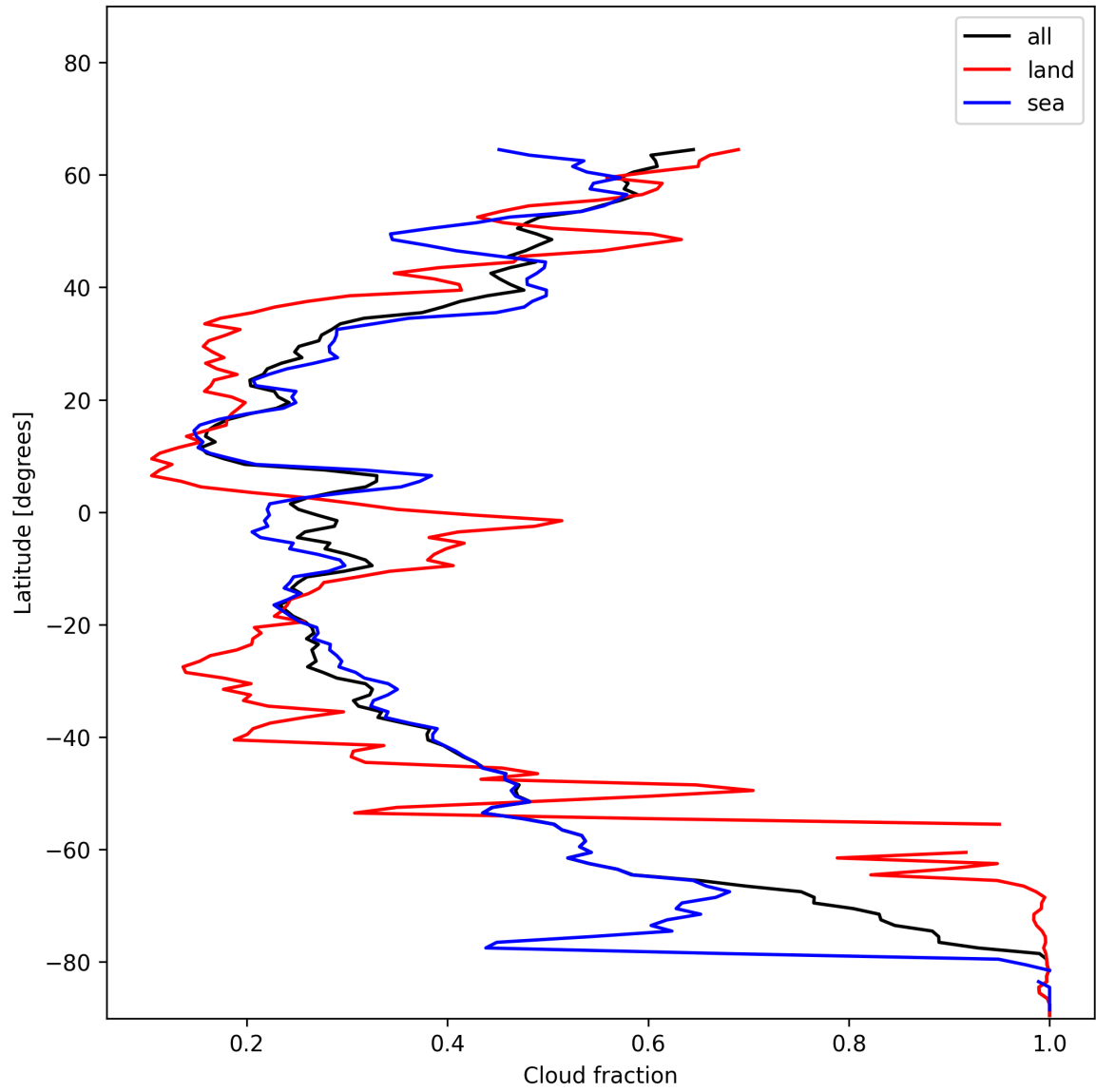


Figure 13: Zonal average of “Cloud fraction” for 2024-12-26 to 2024-12-27.

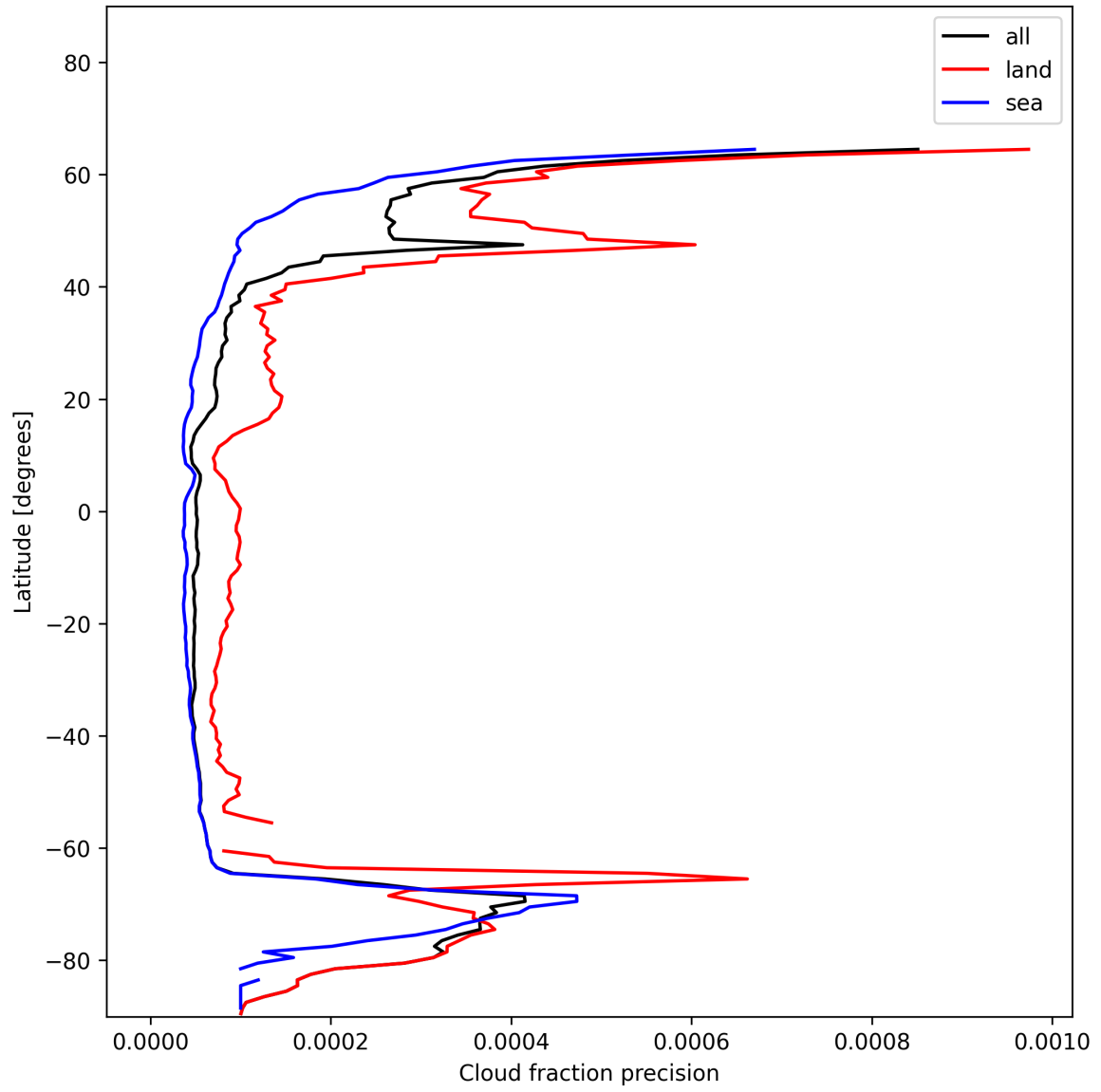


Figure 14: Zonal average of “Cloud fraction precision” for 2024-12-26 to 2024-12-27.

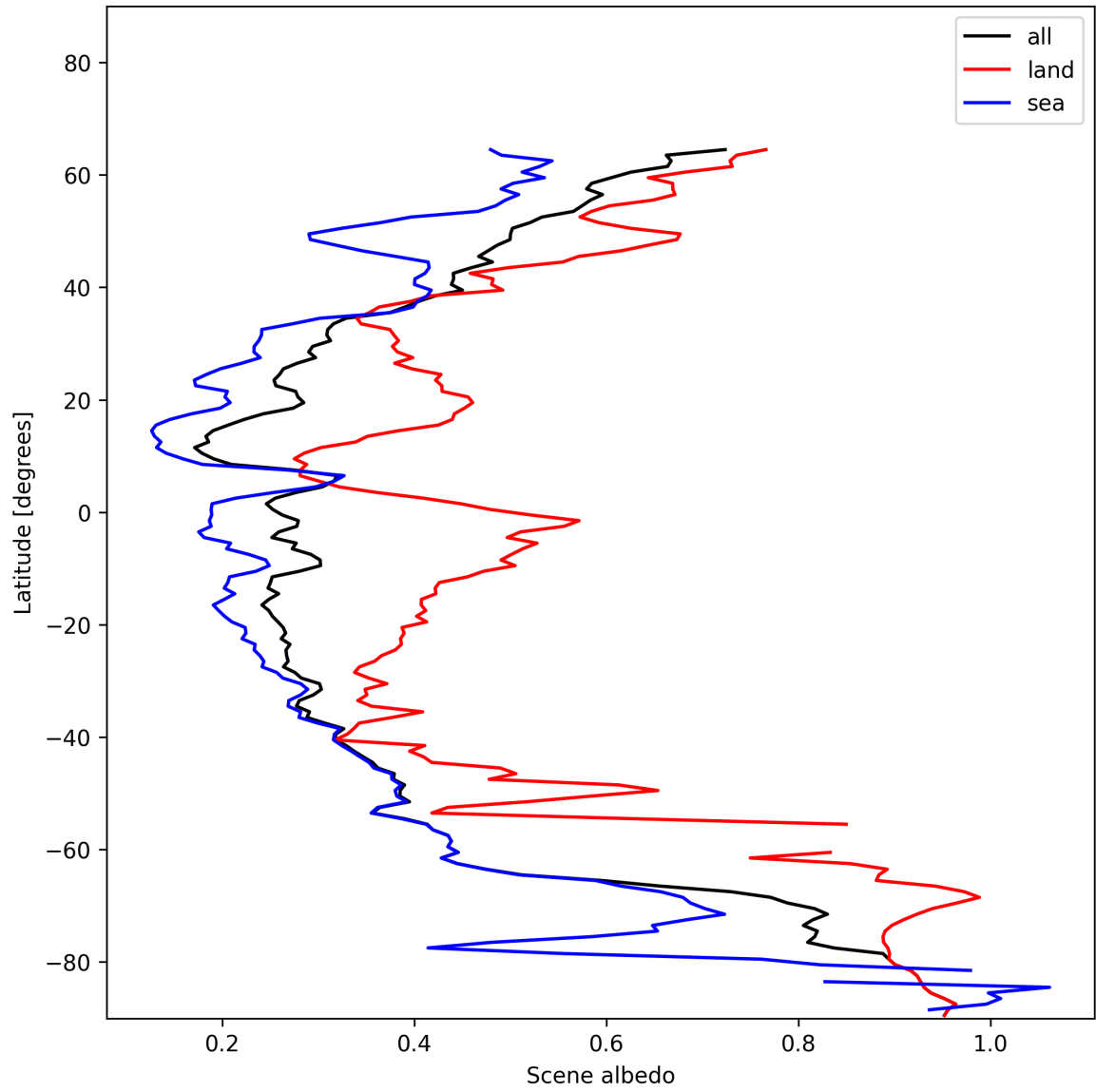


Figure 15: Zonal average of “Scene albedo” for 2024-12-26 to 2024-12-27.

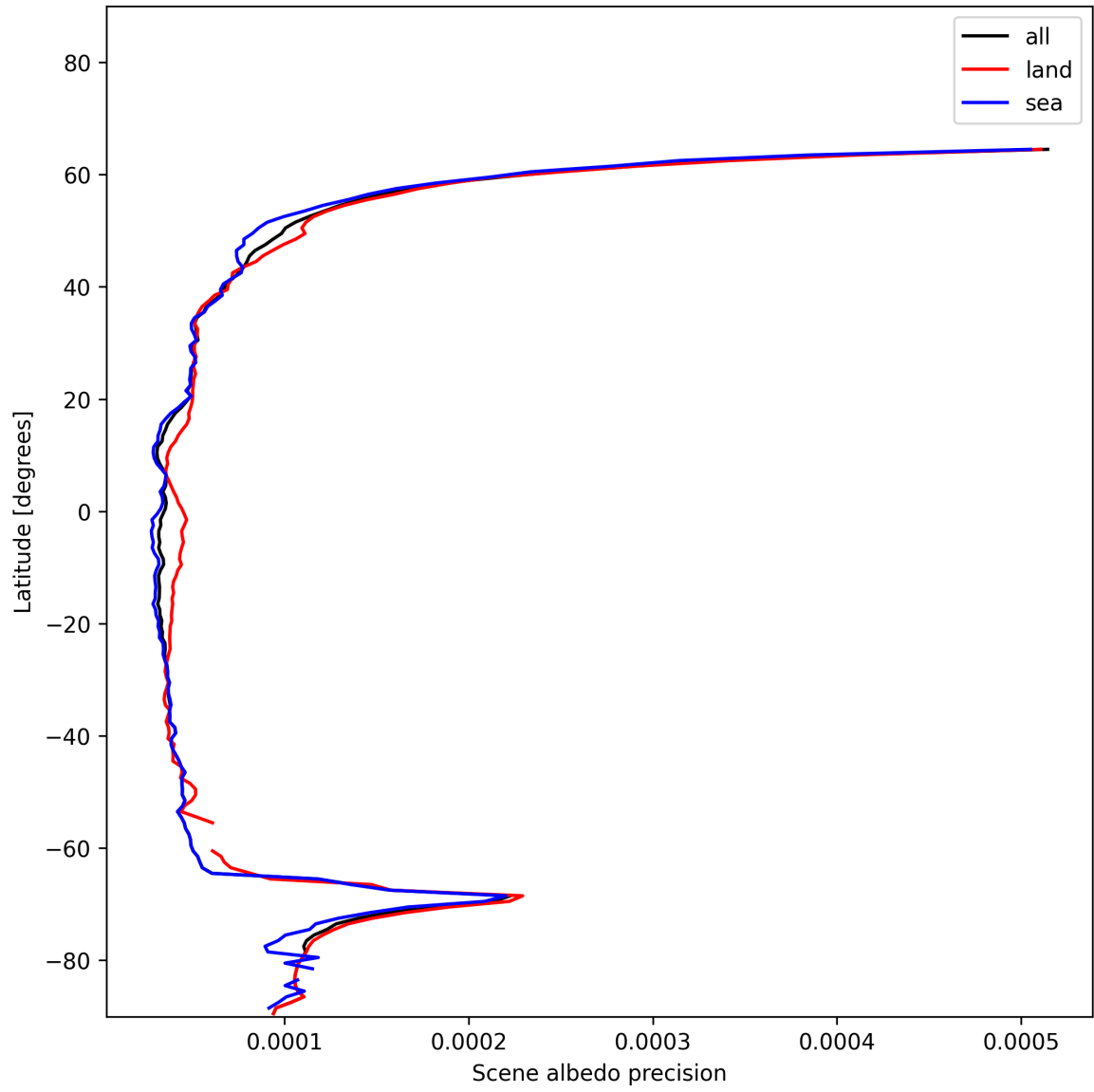


Figure 16: Zonal average of “Scene albedo precision” for 2024-12-26 to 2024-12-27.

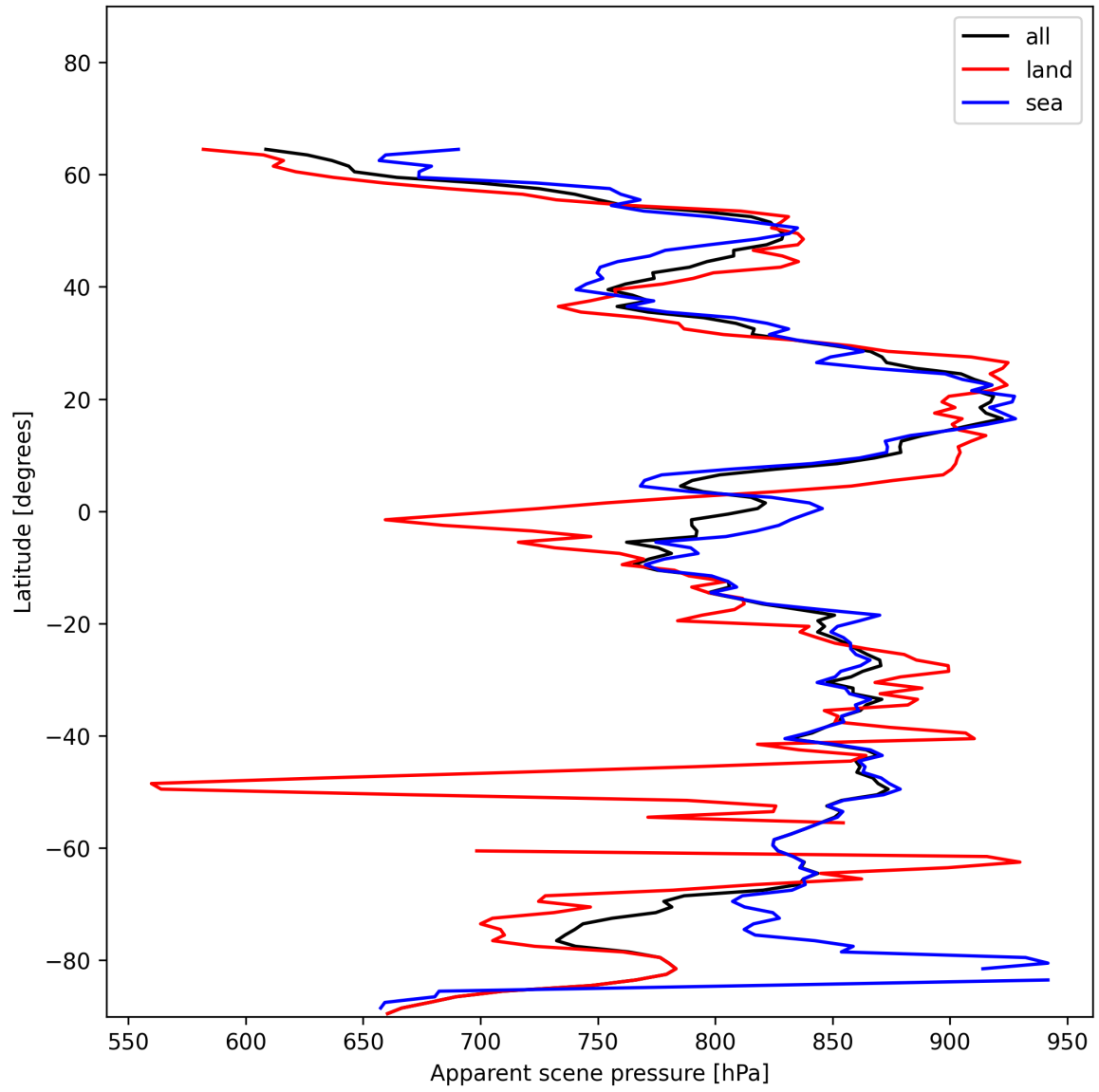


Figure 17: Zonal average of “Apparent scene pressure” for 2024-12-26 to 2024-12-27.

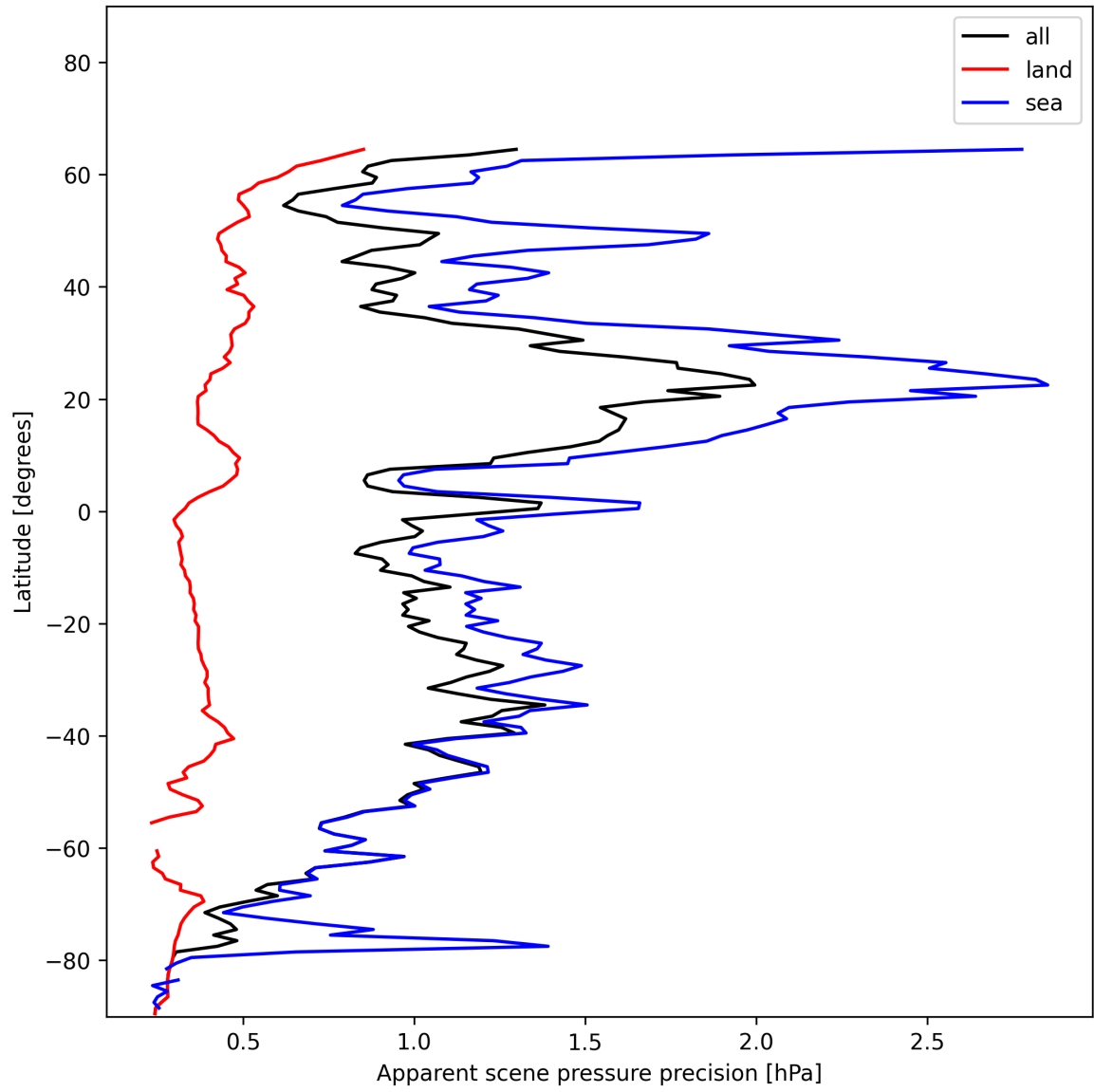


Figure 18: Zonal average of “Apparent scene pressure precision” for 2024-12-26 to 2024-12-27.

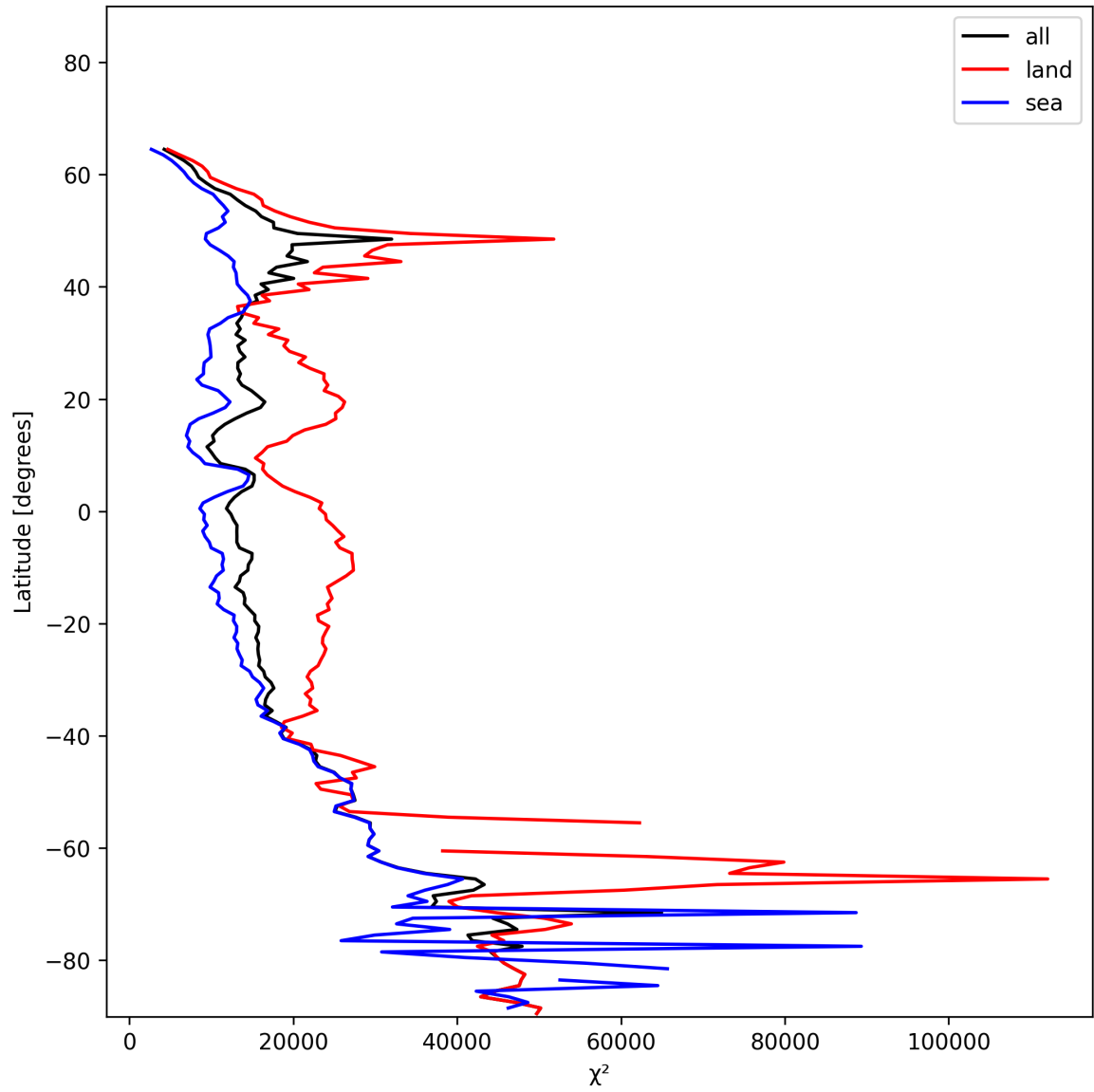


Figure 19: Zonal average of “ χ^2 ” for 2024-12-26 to 2024-12-27.

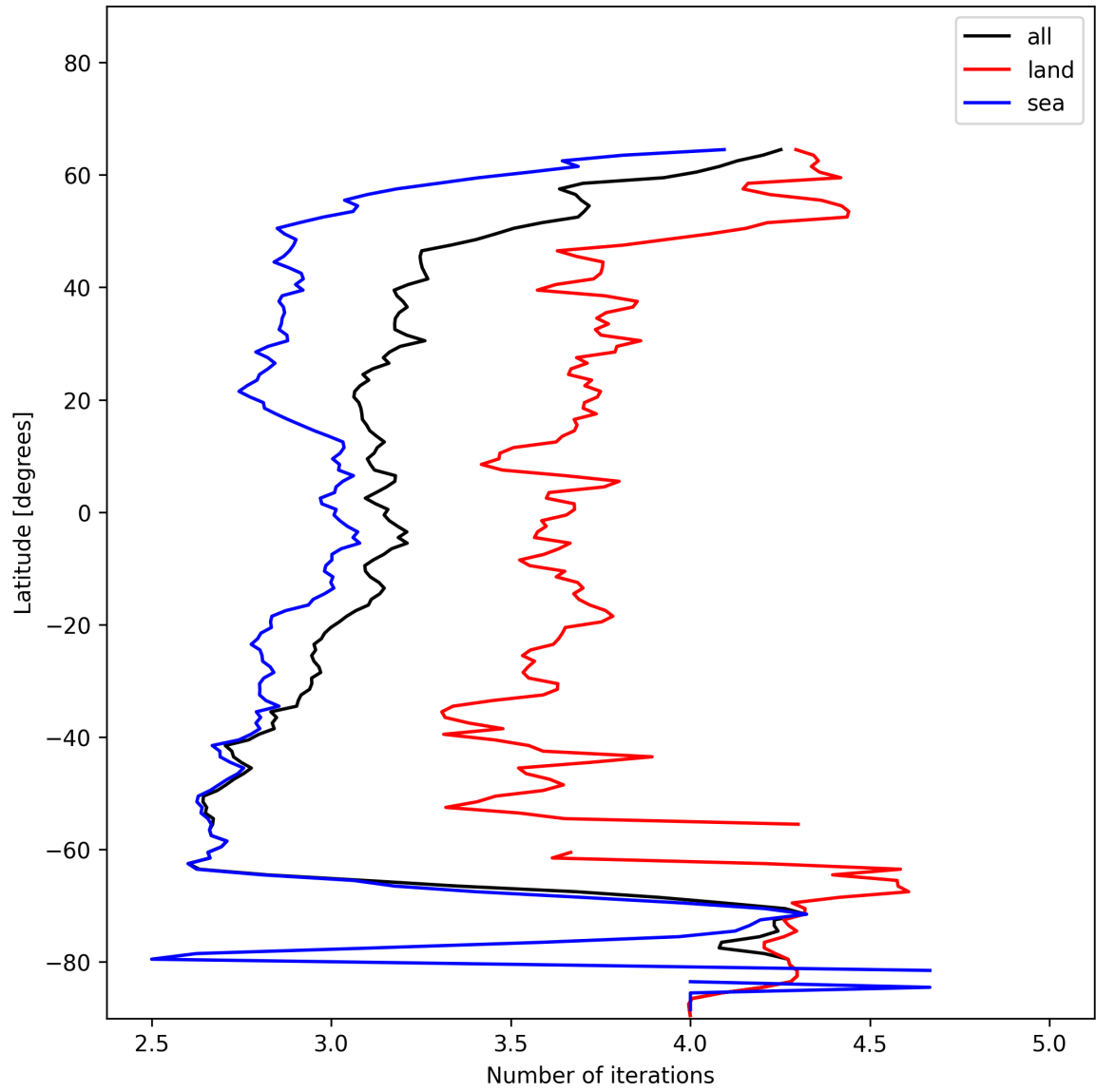


Figure 20: Zonal average of “Number of iterations” for 2024-12-26 to 2024-12-27.

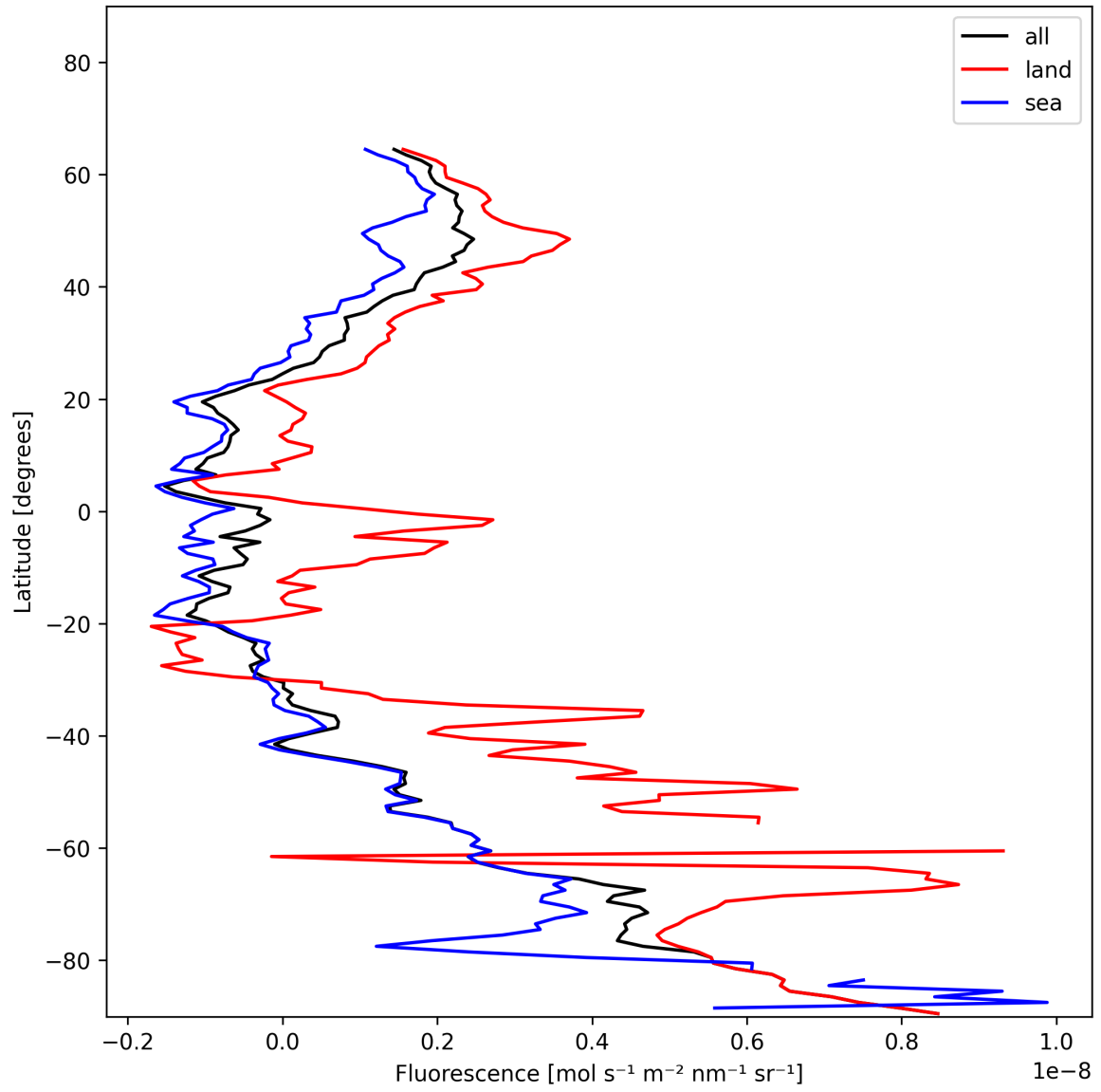


Figure 21: Zonal average of “Fluorescence” for 2024-12-26 to 2024-12-27.

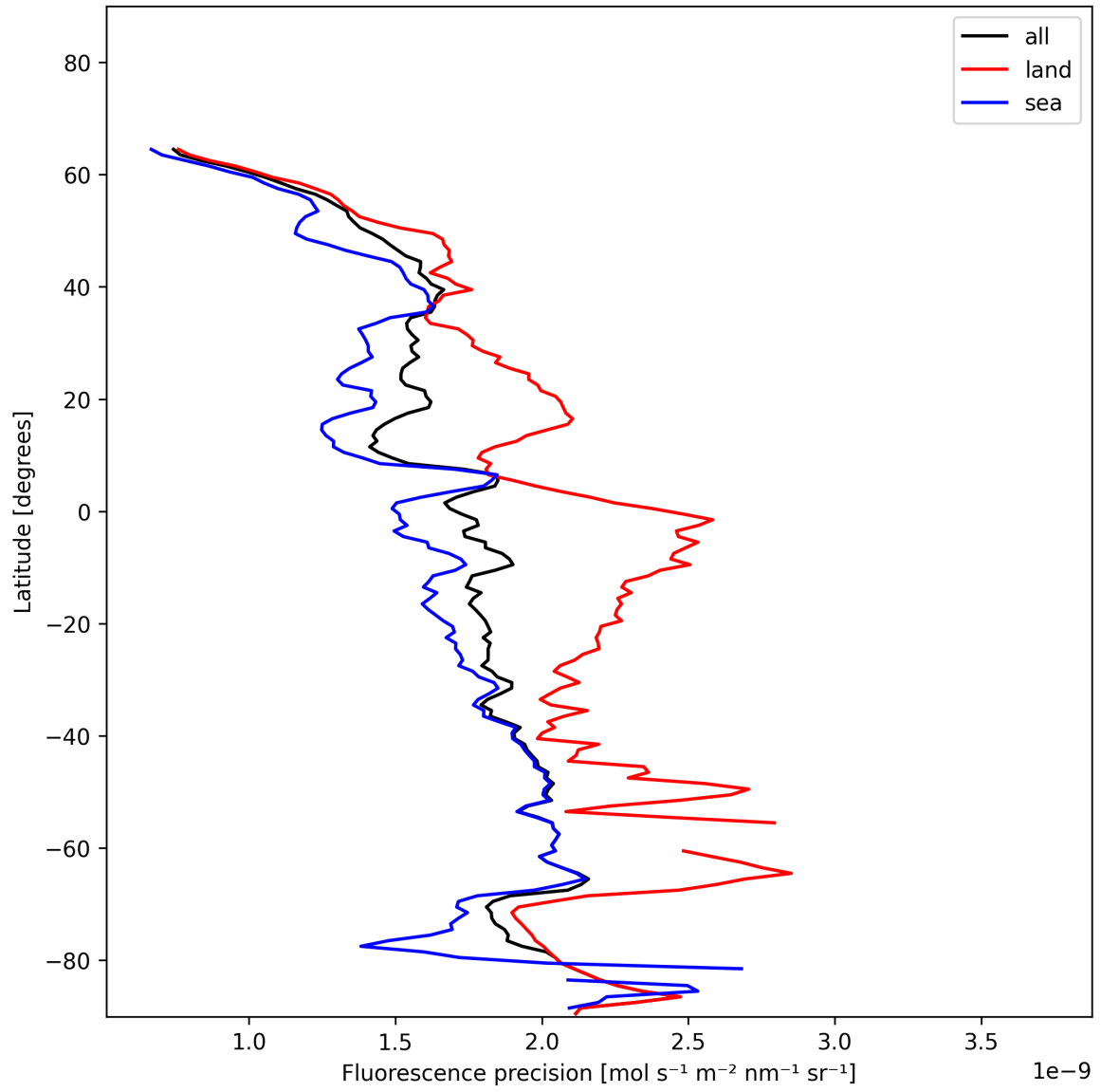


Figure 22: Zonal average of “Fluorescence precision” for 2024-12-26 to 2024-12-27.

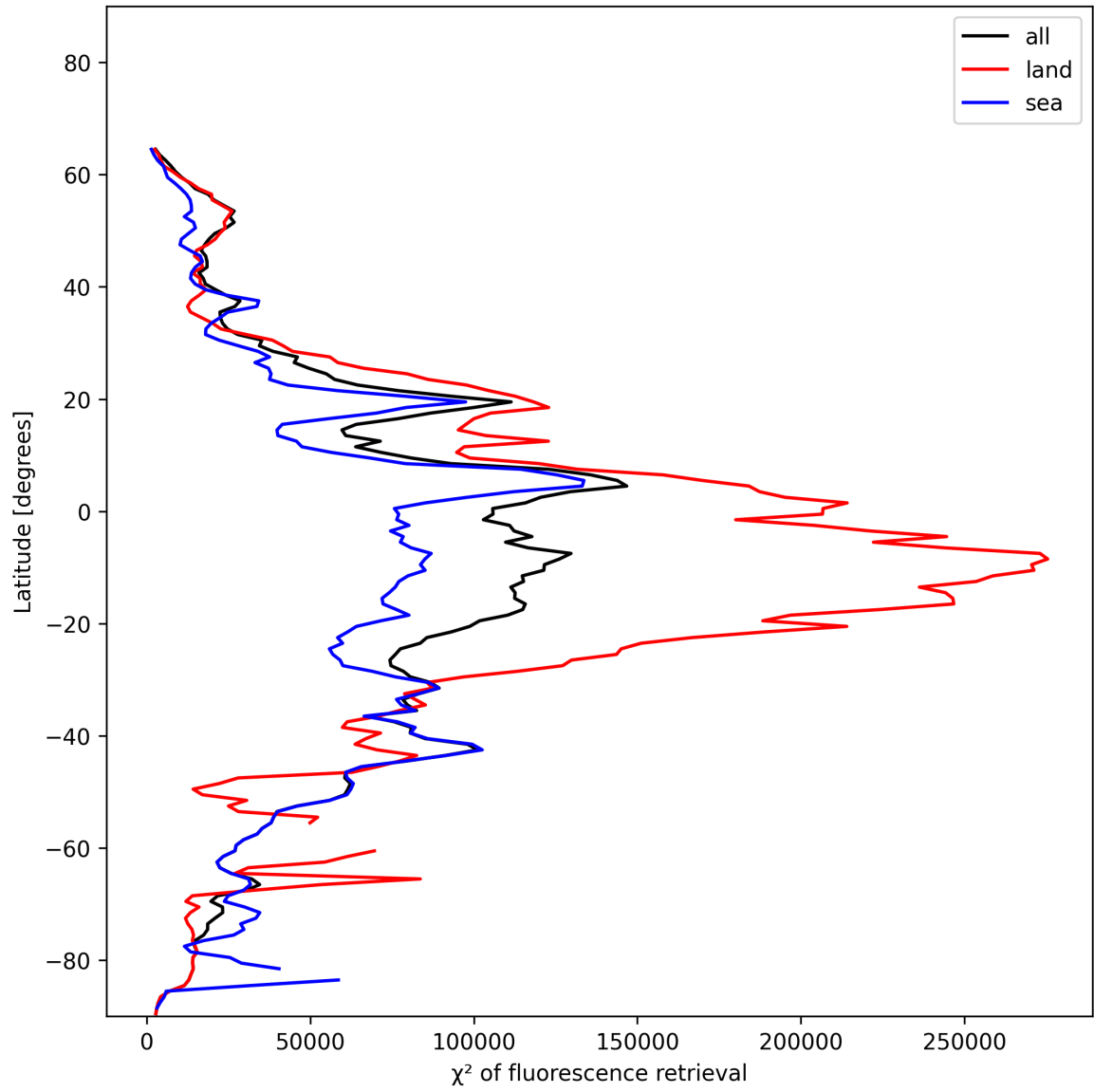


Figure 23: Zonal average of “ χ^2 of fluorescence retrieval” for 2024-12-26 to 2024-12-27.

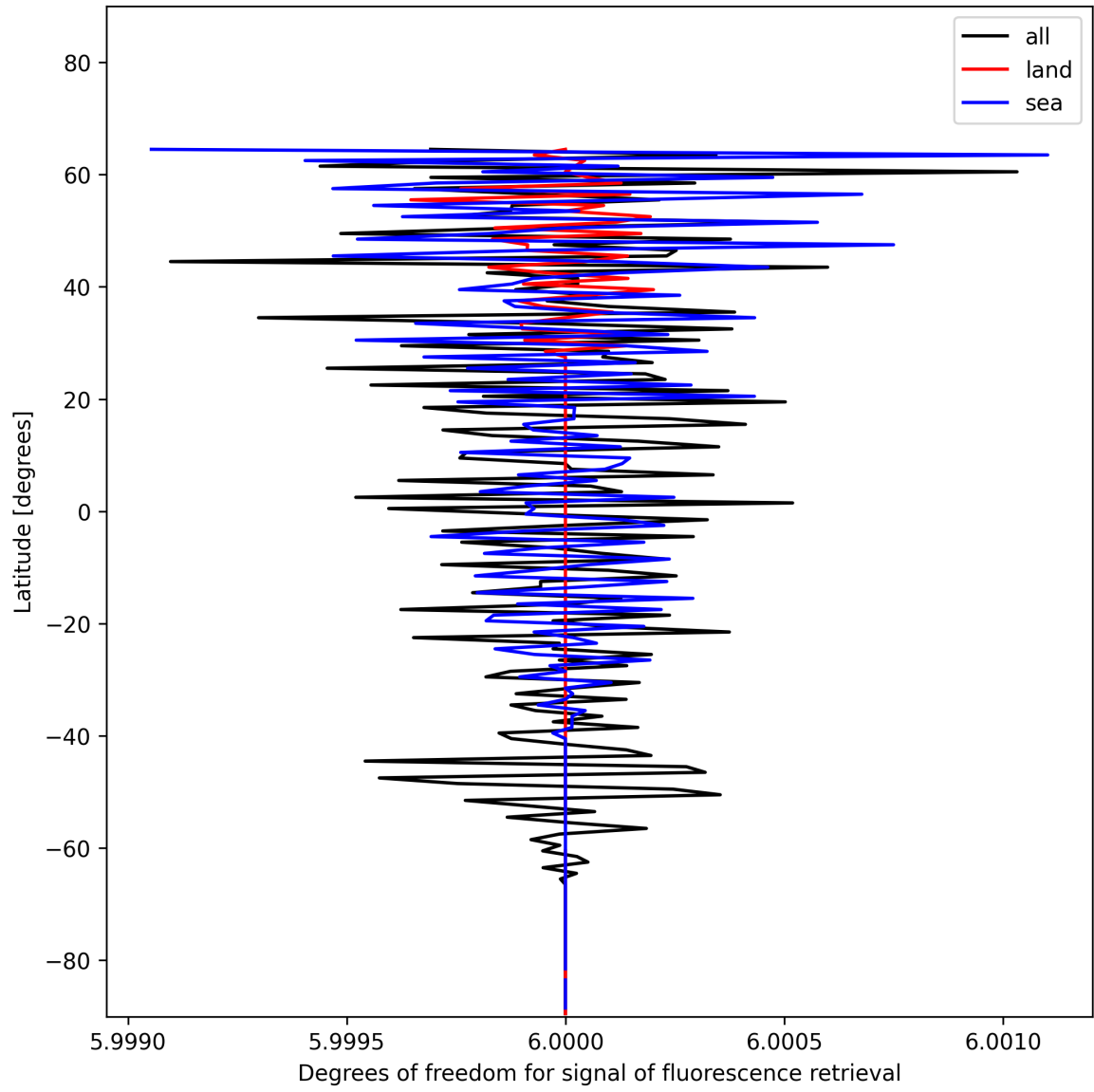


Figure 24: Zonal average of “Degrees of freedom for signal of fluorescence retrieval” for 2024-12-26 to 2024-12-27.

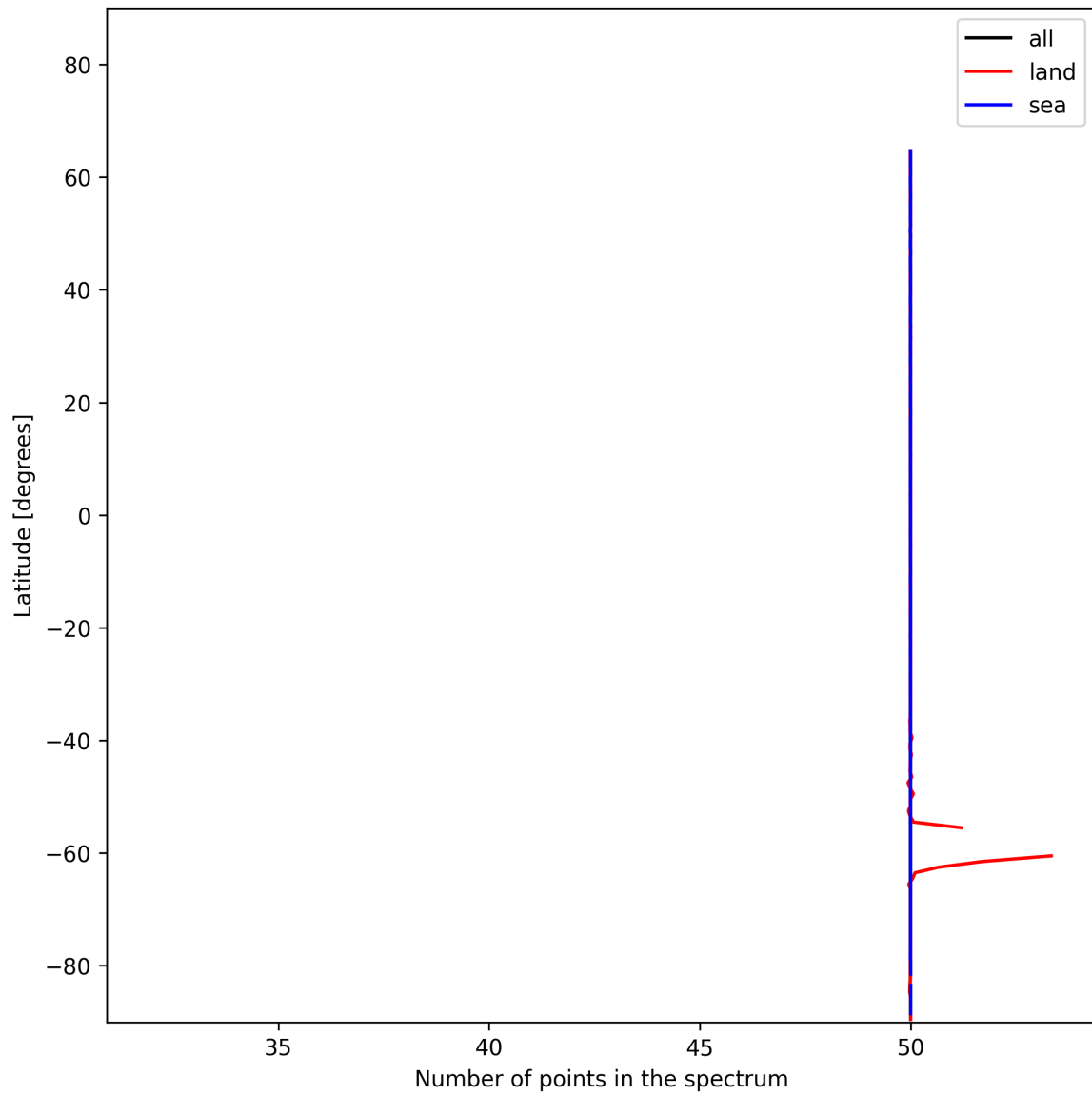


Figure 25: Zonal average of “Number of points in the spectrum” for 2024-12-26 to 2024-12-27.

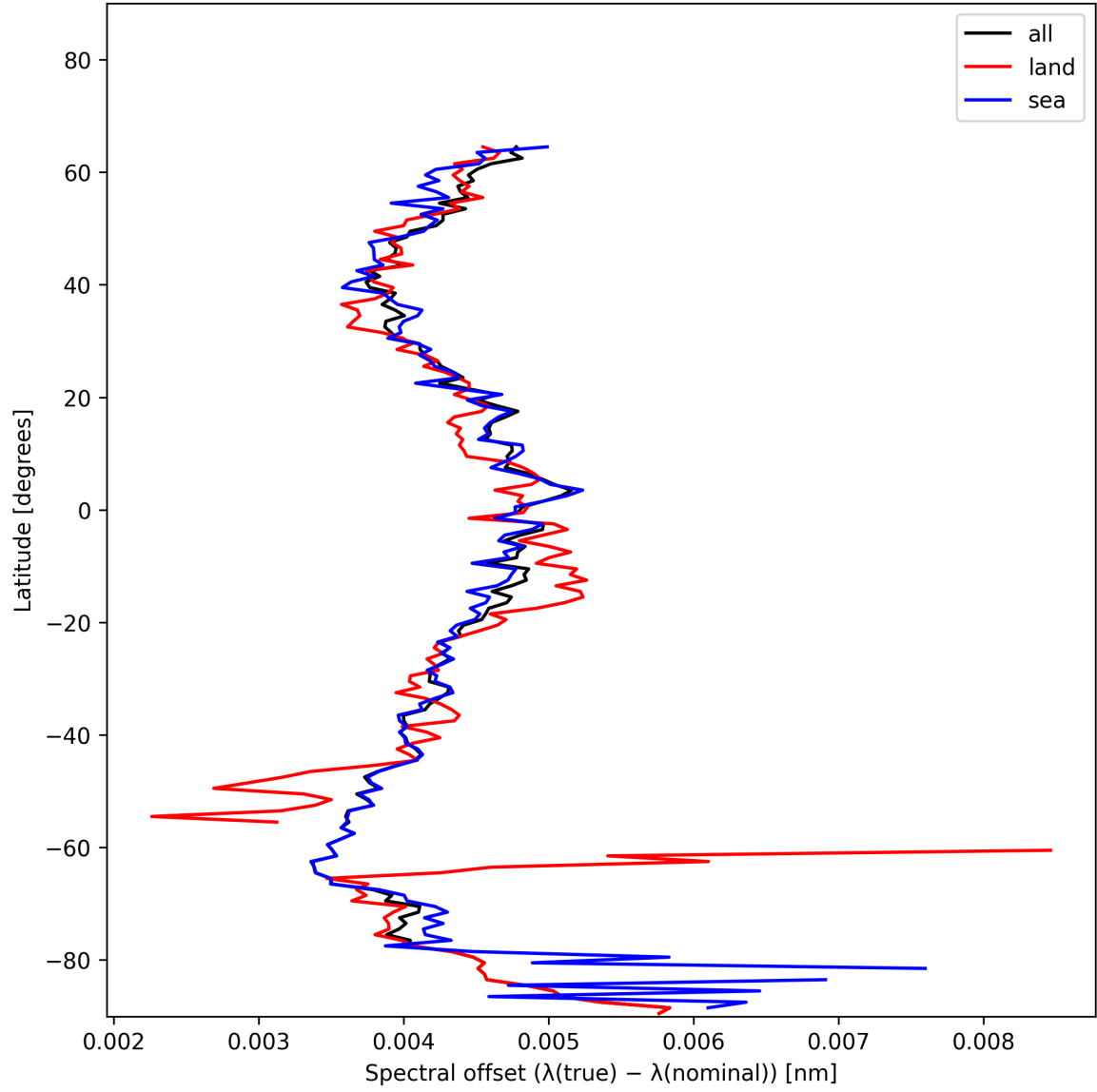


Figure 26: Zonal average of “Spectral offset ($\lambda_{\text{true}} - \lambda_{\text{nominal}}$)” for 2024-12-26 to 2024-12-27.

8 Histograms

The definitions of the parameters given in this section can be found in section 2.

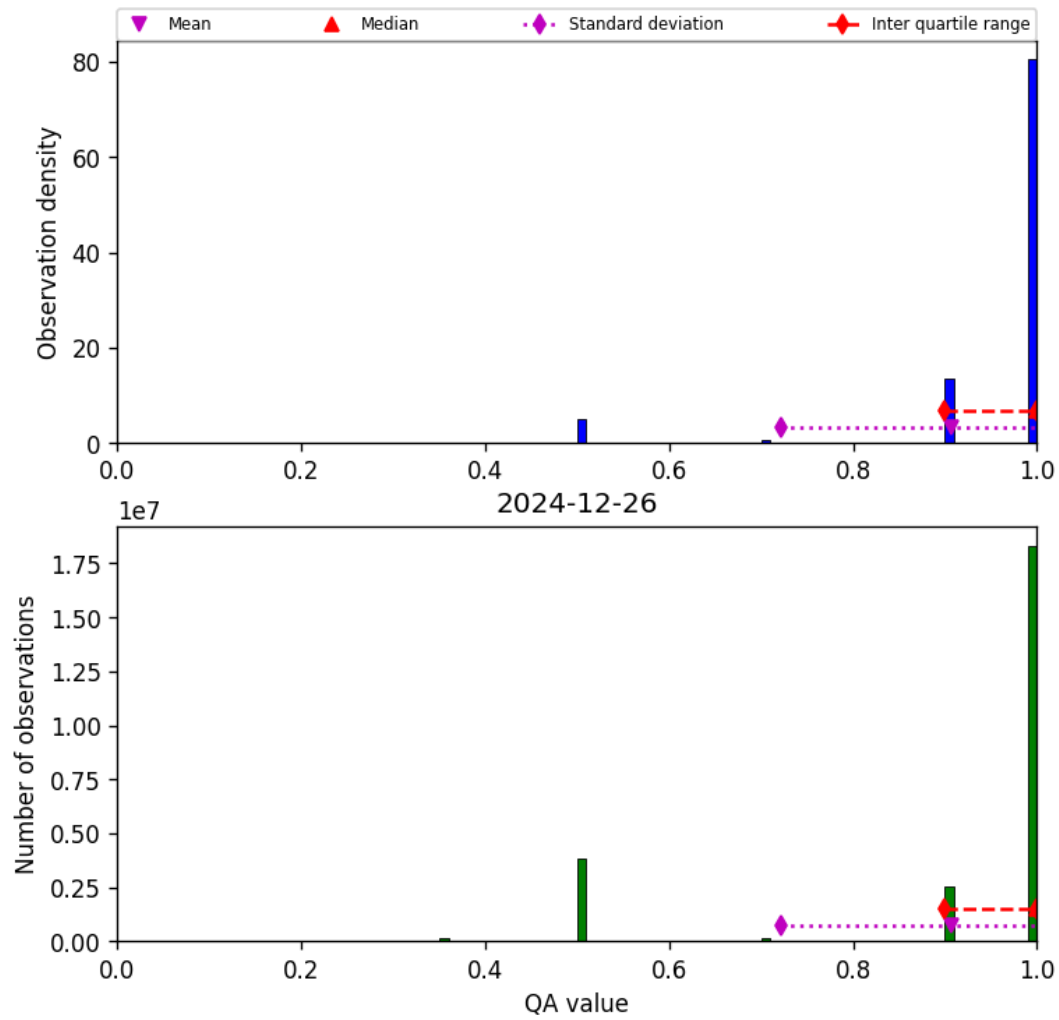


Figure 27: Histogram of “QA value” for 2024-12-26 to 2024-12-27

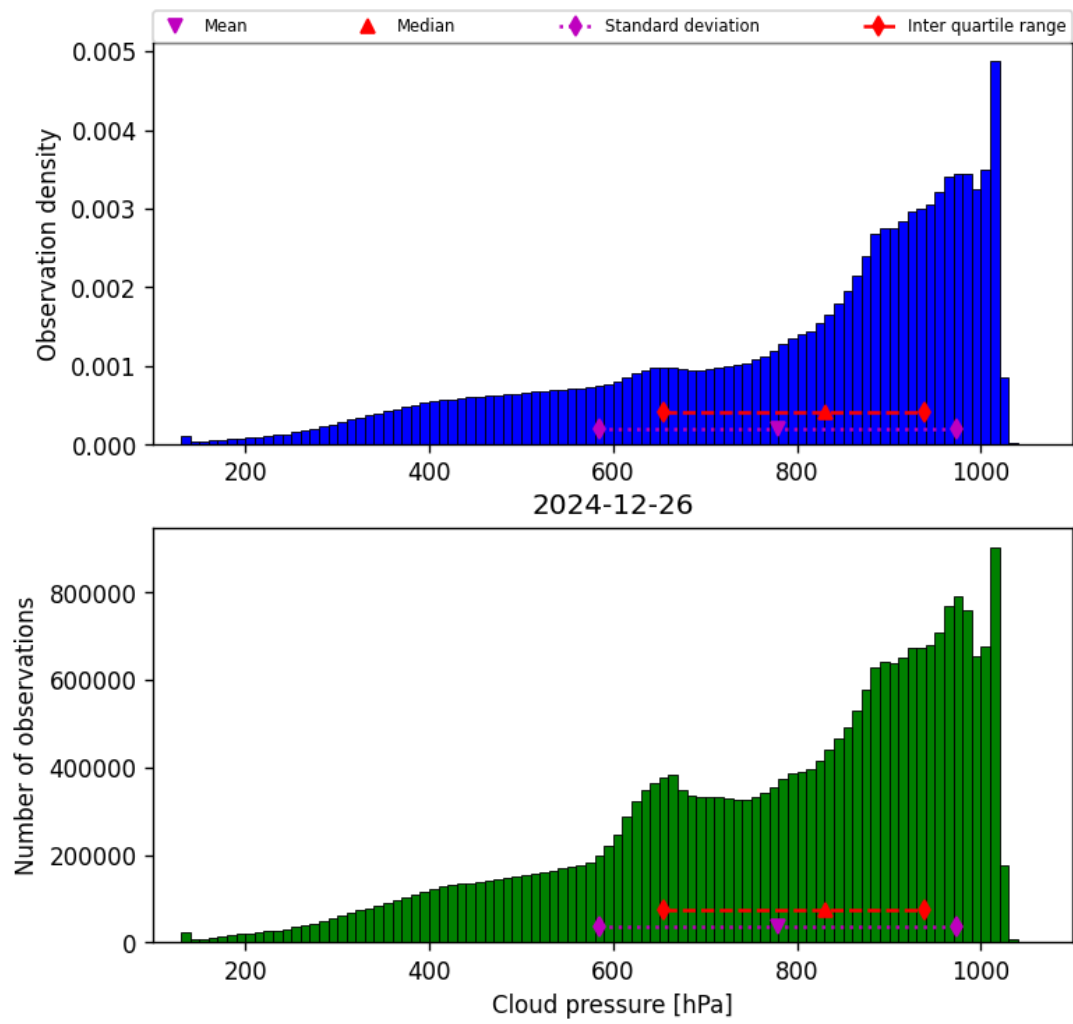


Figure 28: Histogram of “Cloud pressure” for 2024-12-26 to 2024-12-27

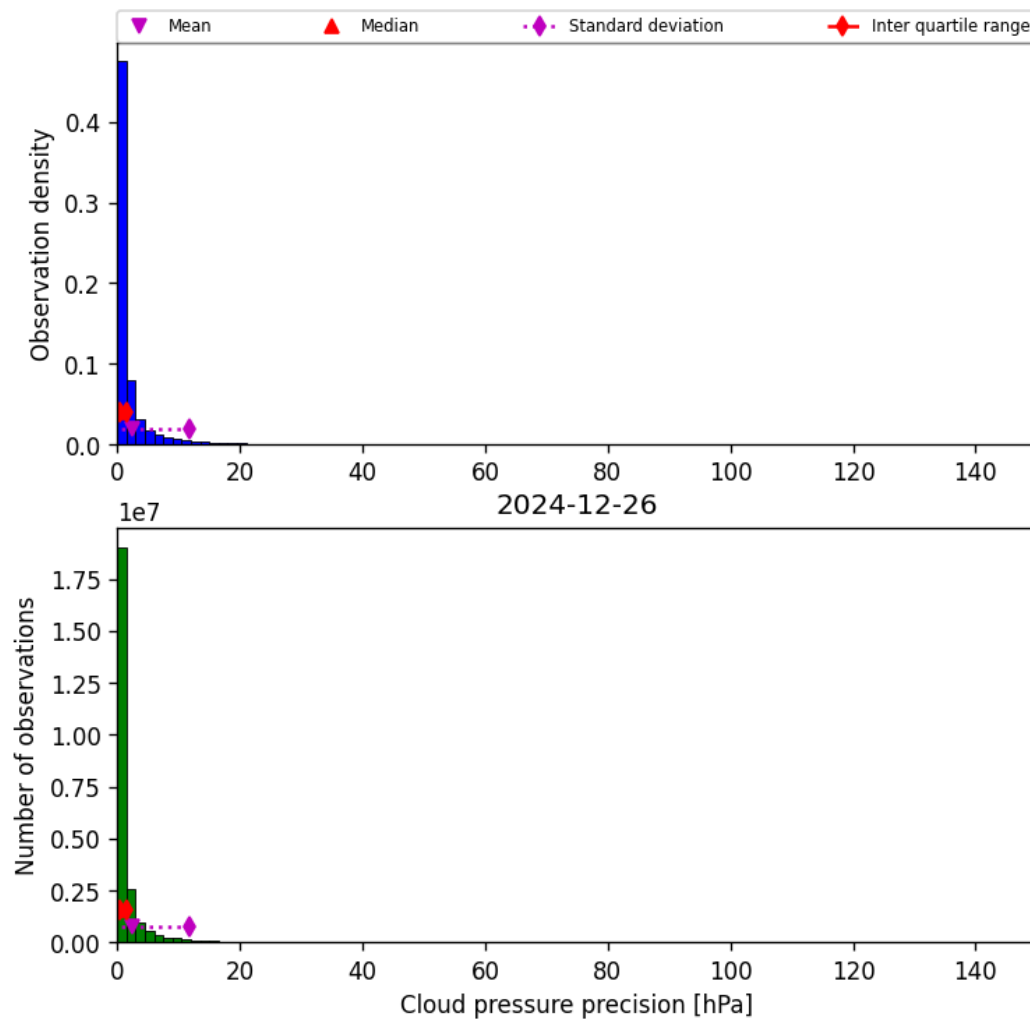


Figure 29: Histogram of “Cloud pressure precision” for 2024-12-26 to 2024-12-27

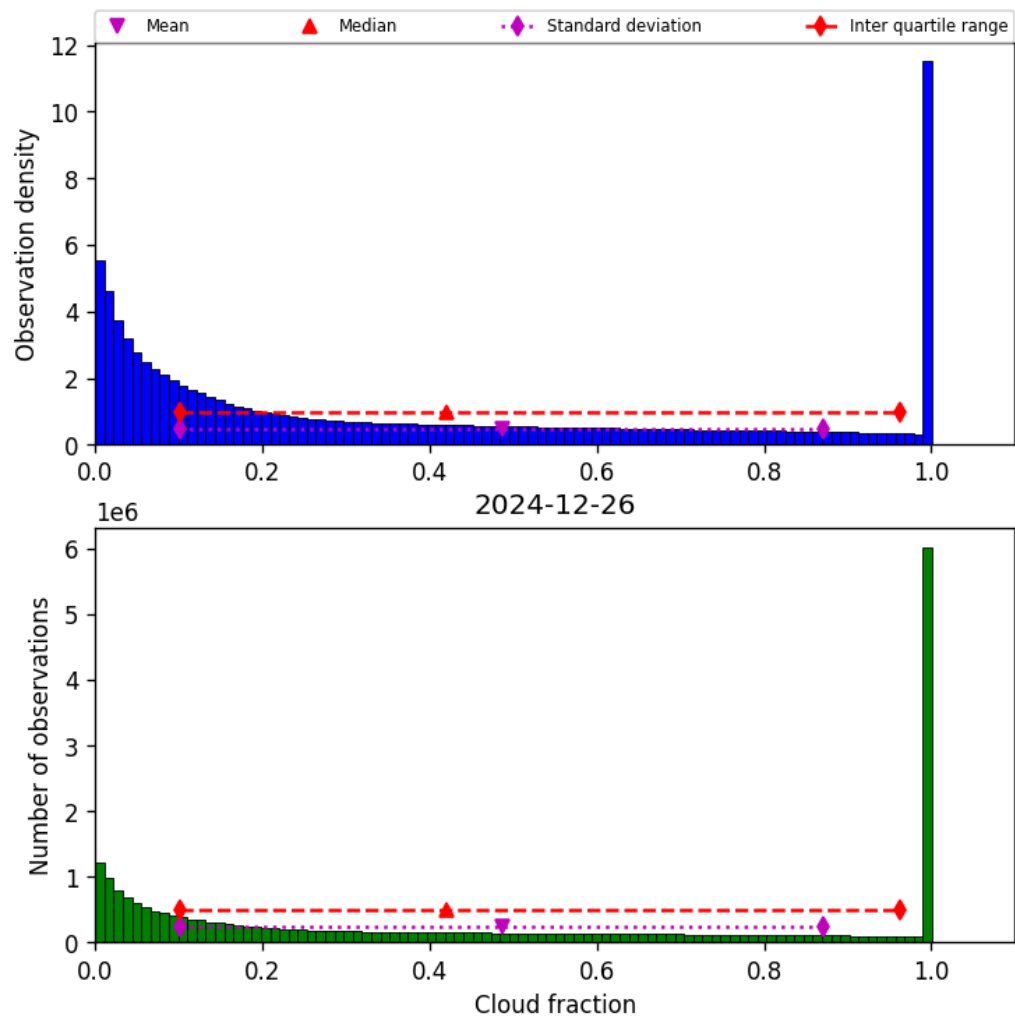


Figure 30: Histogram of “Cloud fraction” for 2024-12-26 to 2024-12-27

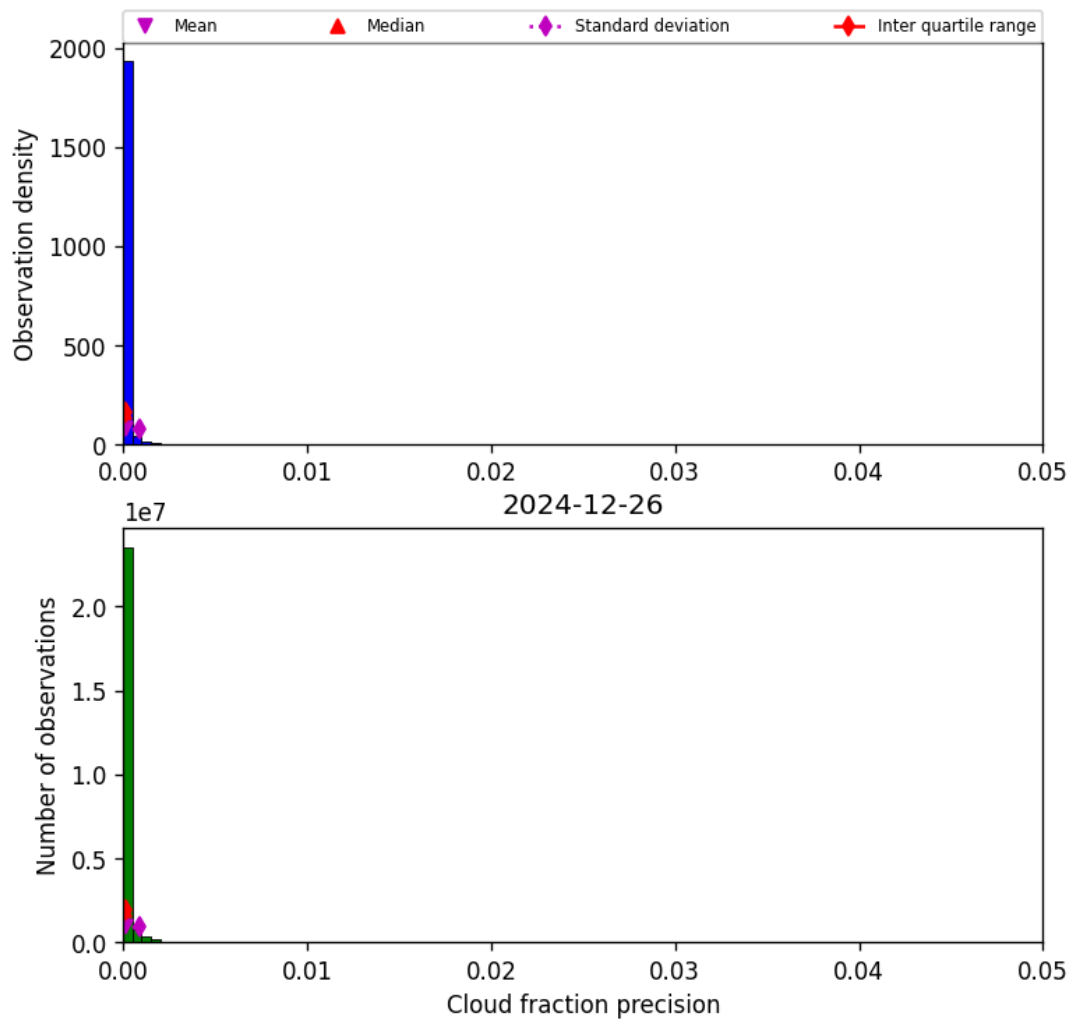


Figure 31: Histogram of “Cloud fraction precision” for 2024-12-26 to 2024-12-27

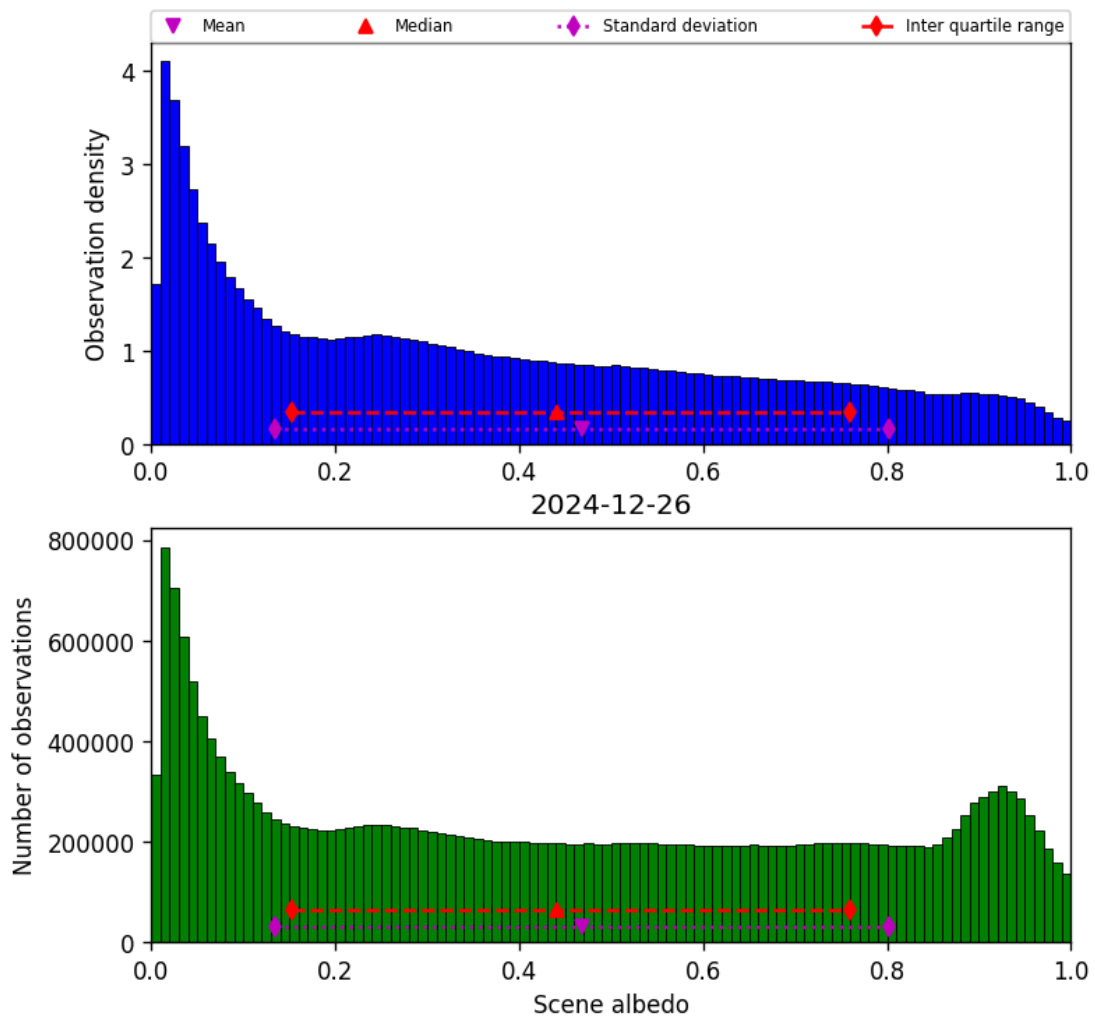


Figure 32: Histogram of “Scene albedo” for 2024-12-26 to 2024-12-27

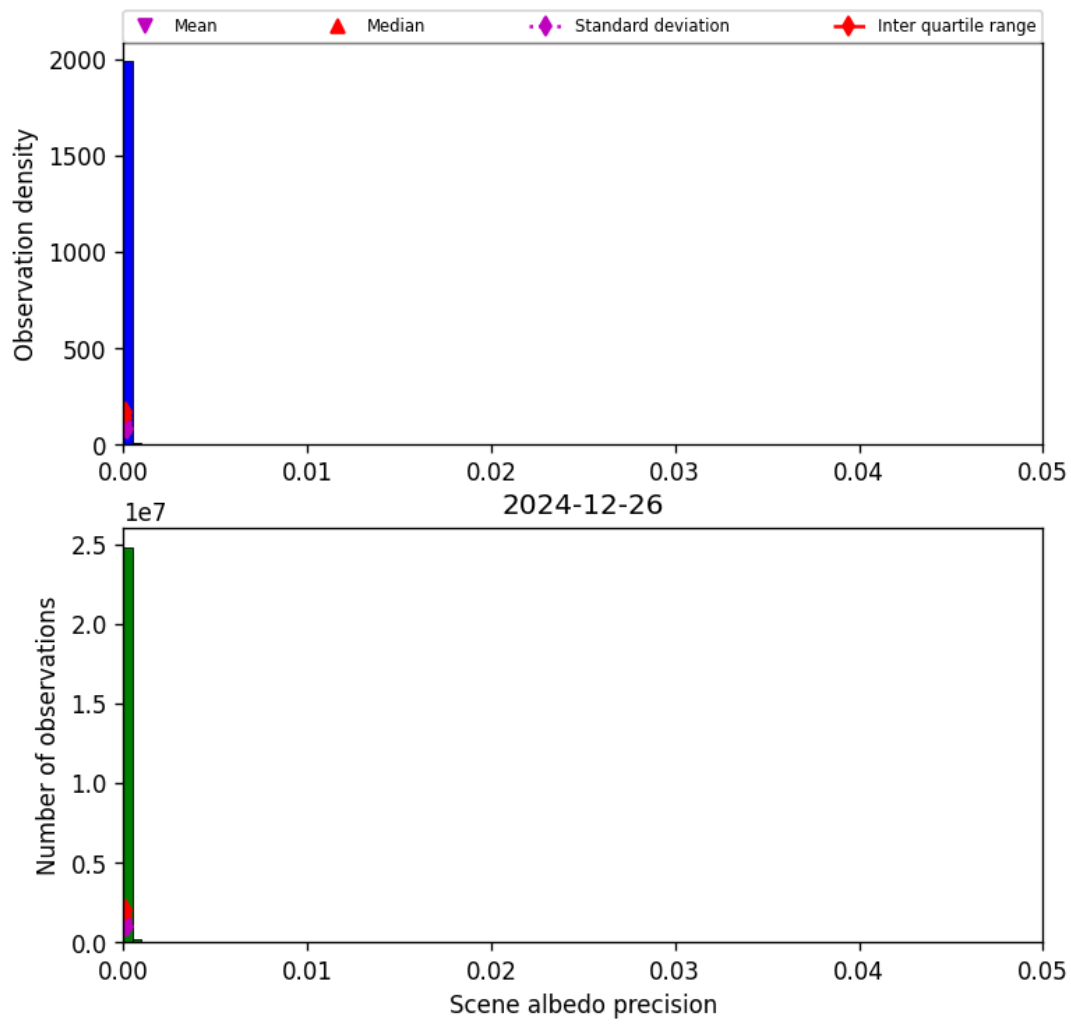


Figure 33: Histogram of “Scene albedo precision” for 2024-12-26 to 2024-12-27

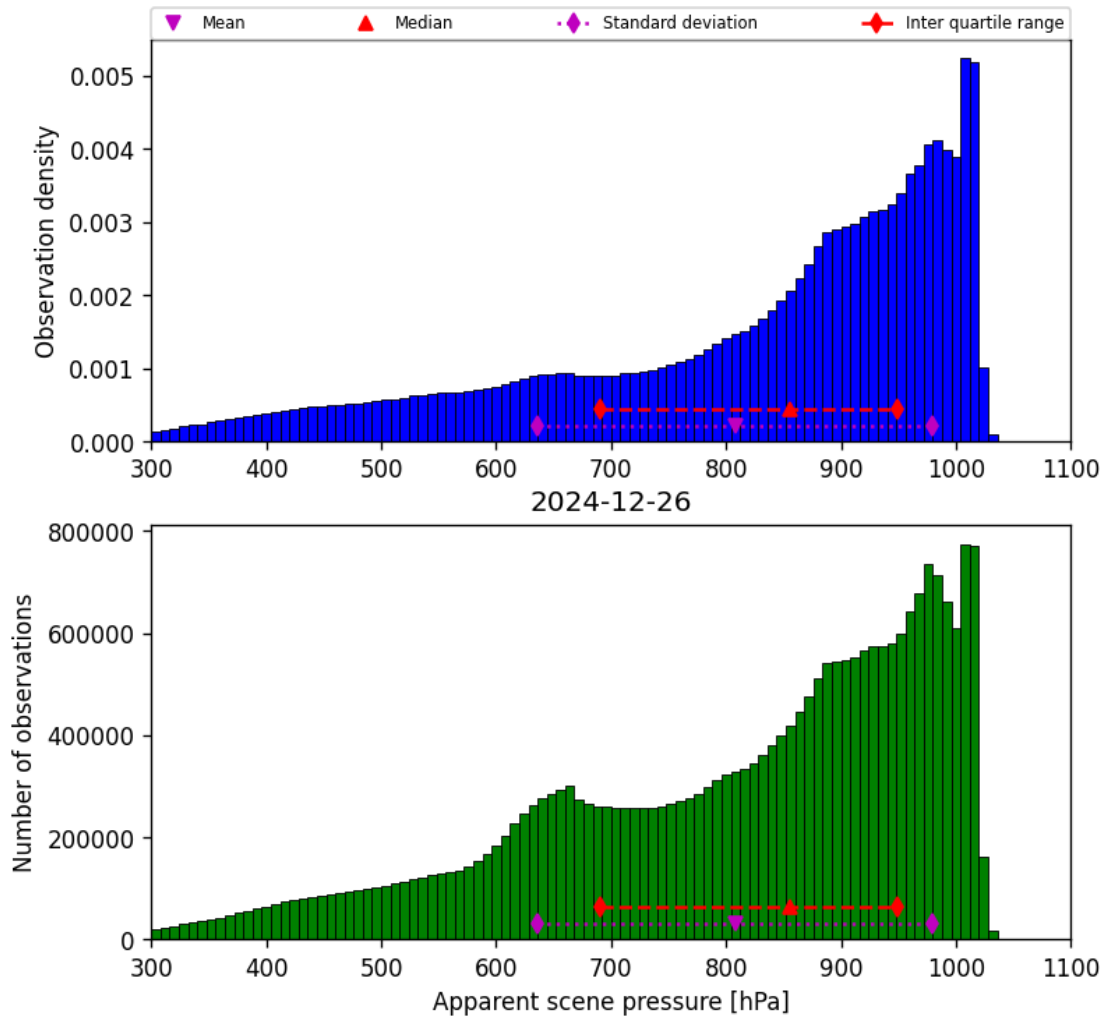


Figure 34: Histogram of “Apparent scene pressure” for 2024-12-26 to 2024-12-27

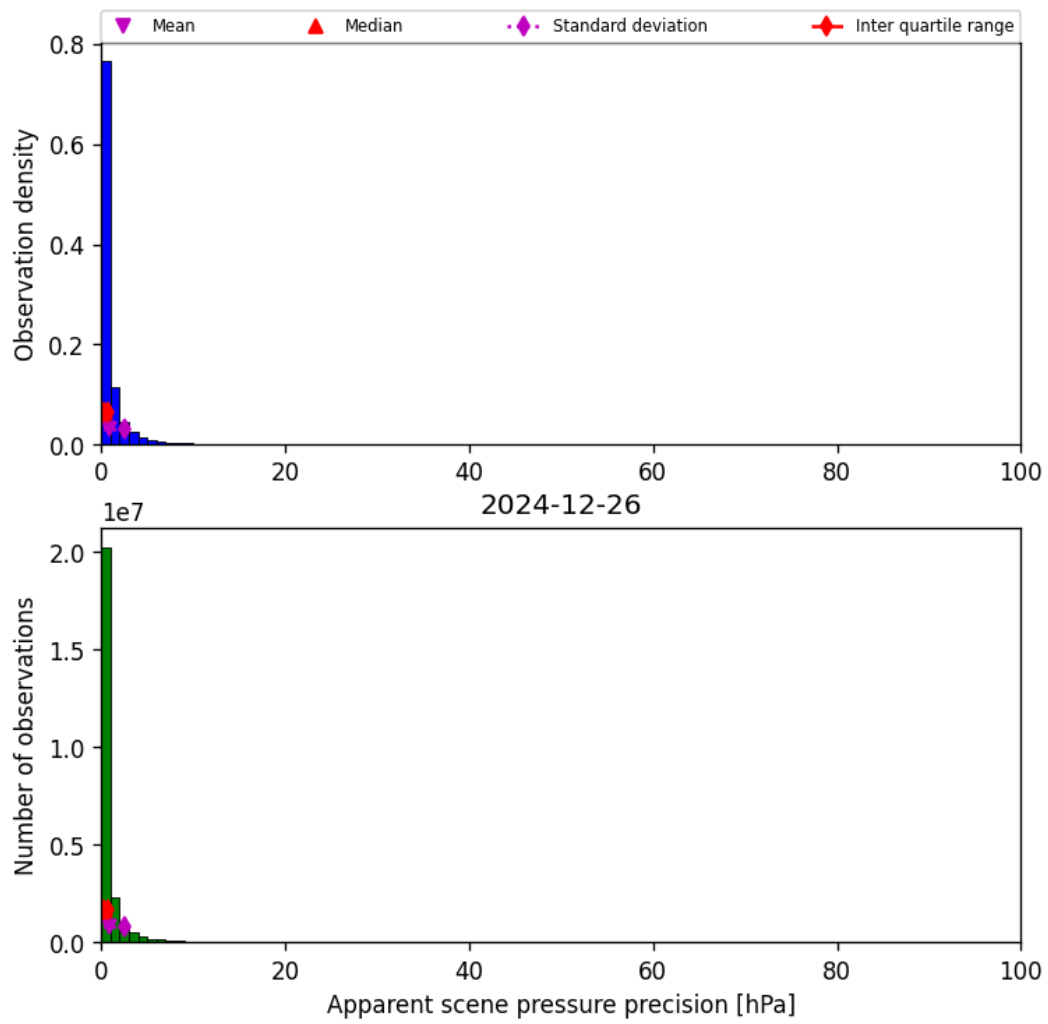


Figure 35: Histogram of “Apparent scene pressure precision” for 2024-12-26 to 2024-12-27

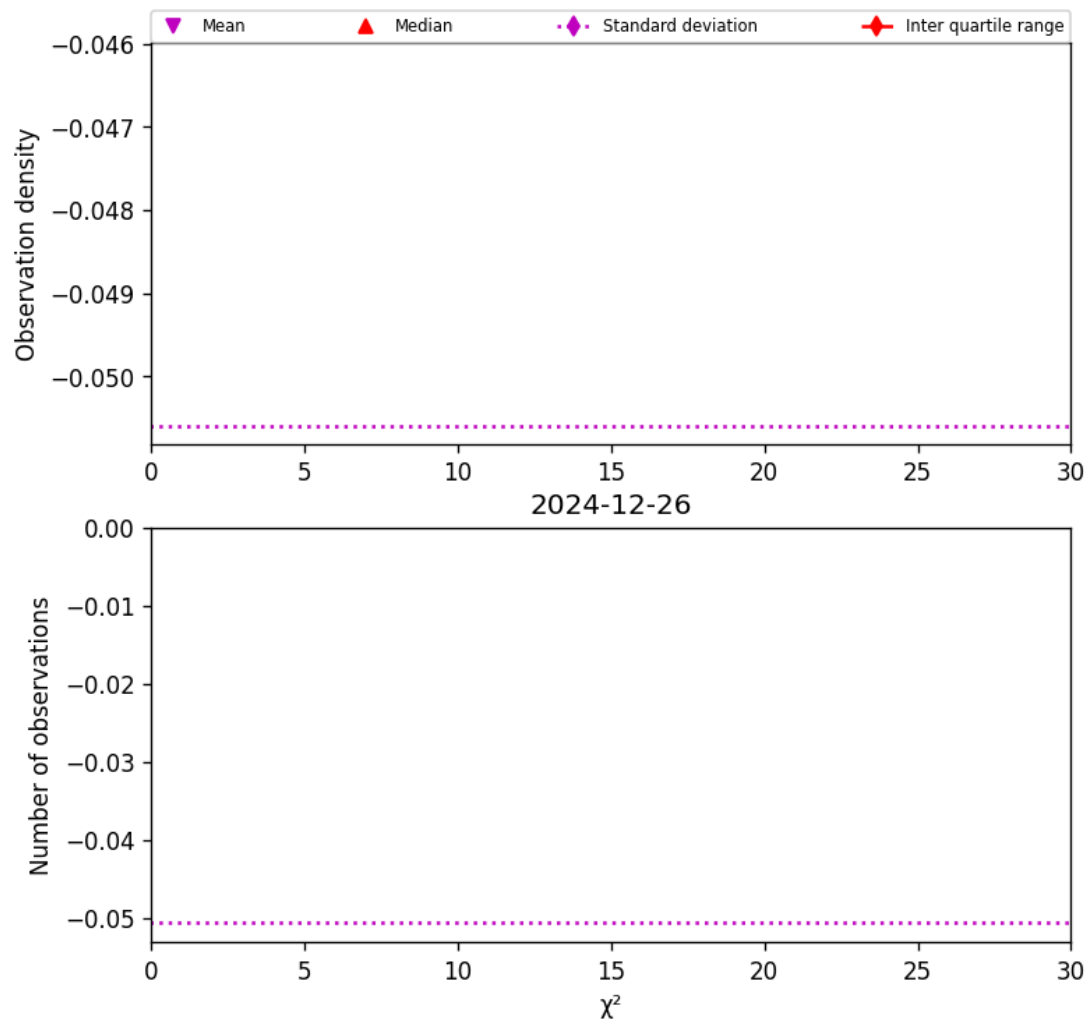


Figure 36: Histogram of " χ^2 " for 2024-12-26 to 2024-12-27

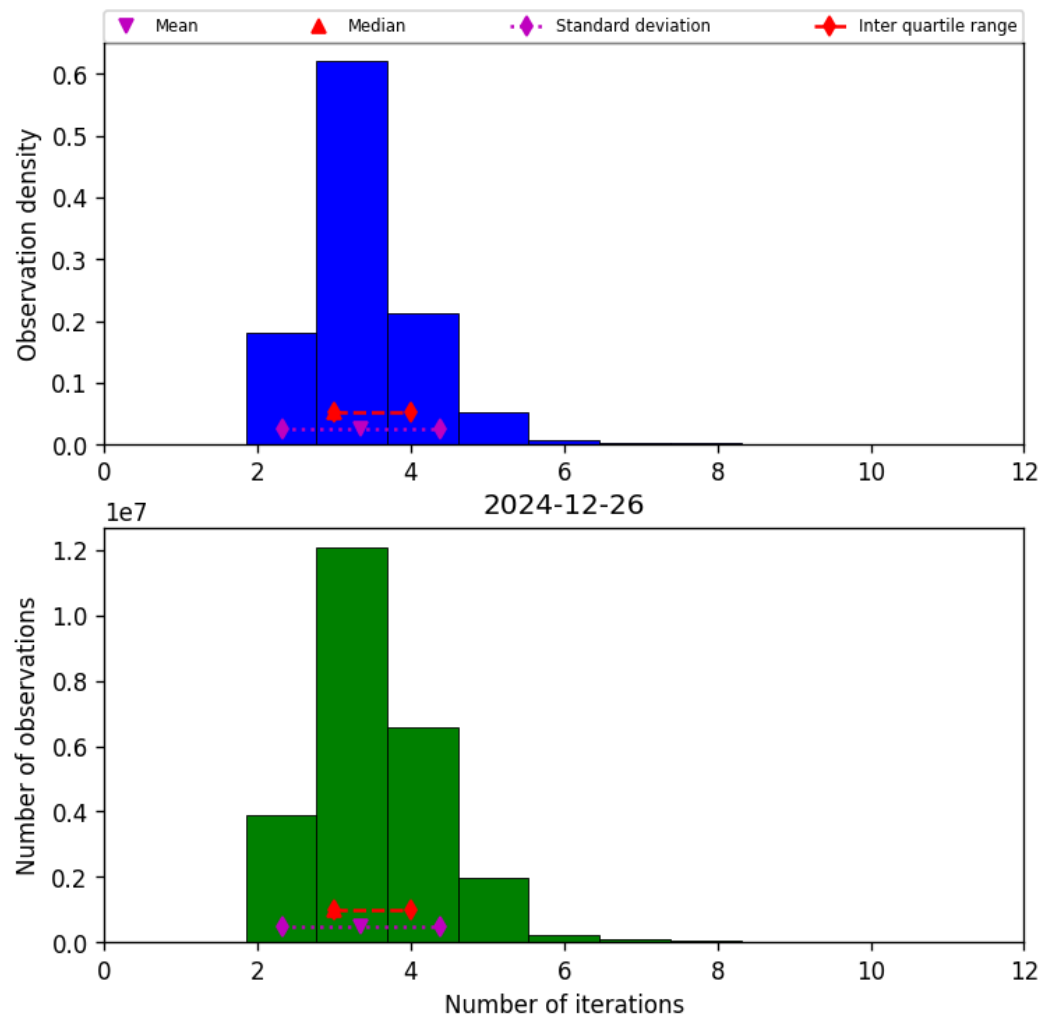


Figure 37: Histogram of “Number of iterations” for 2024-12-26 to 2024-12-27

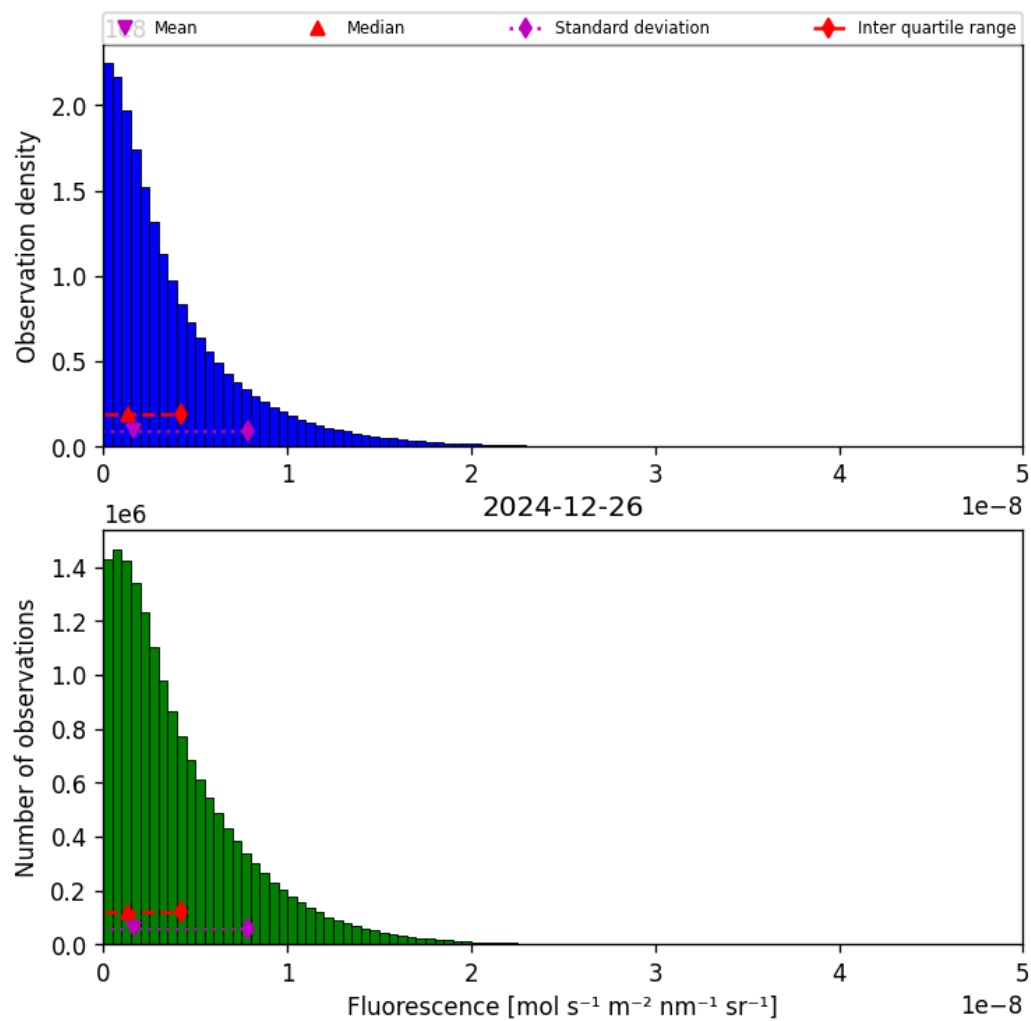


Figure 38: Histogram of “Fluorescence” for 2024-12-26 to 2024-12-27

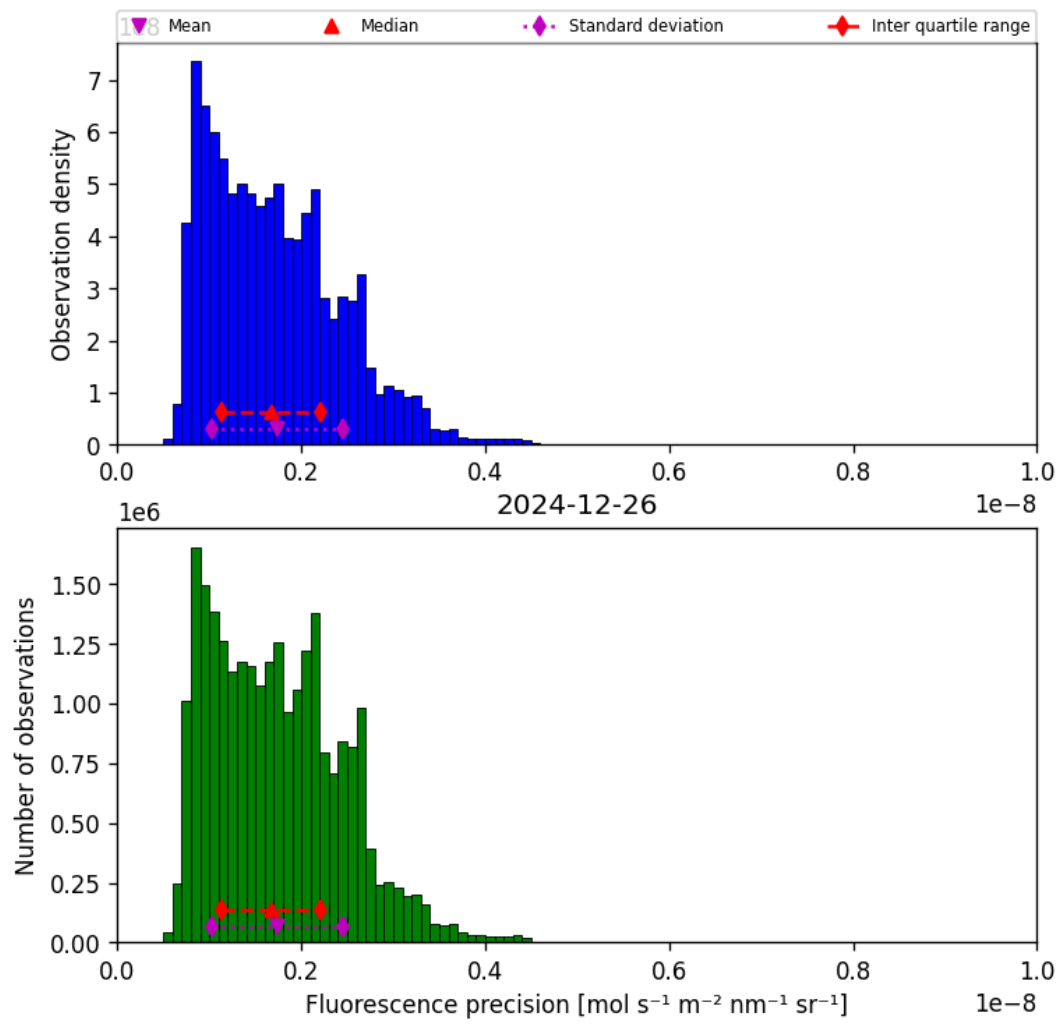


Figure 39: Histogram of “Fluorescence precision” for 2024-12-26 to 2024-12-27

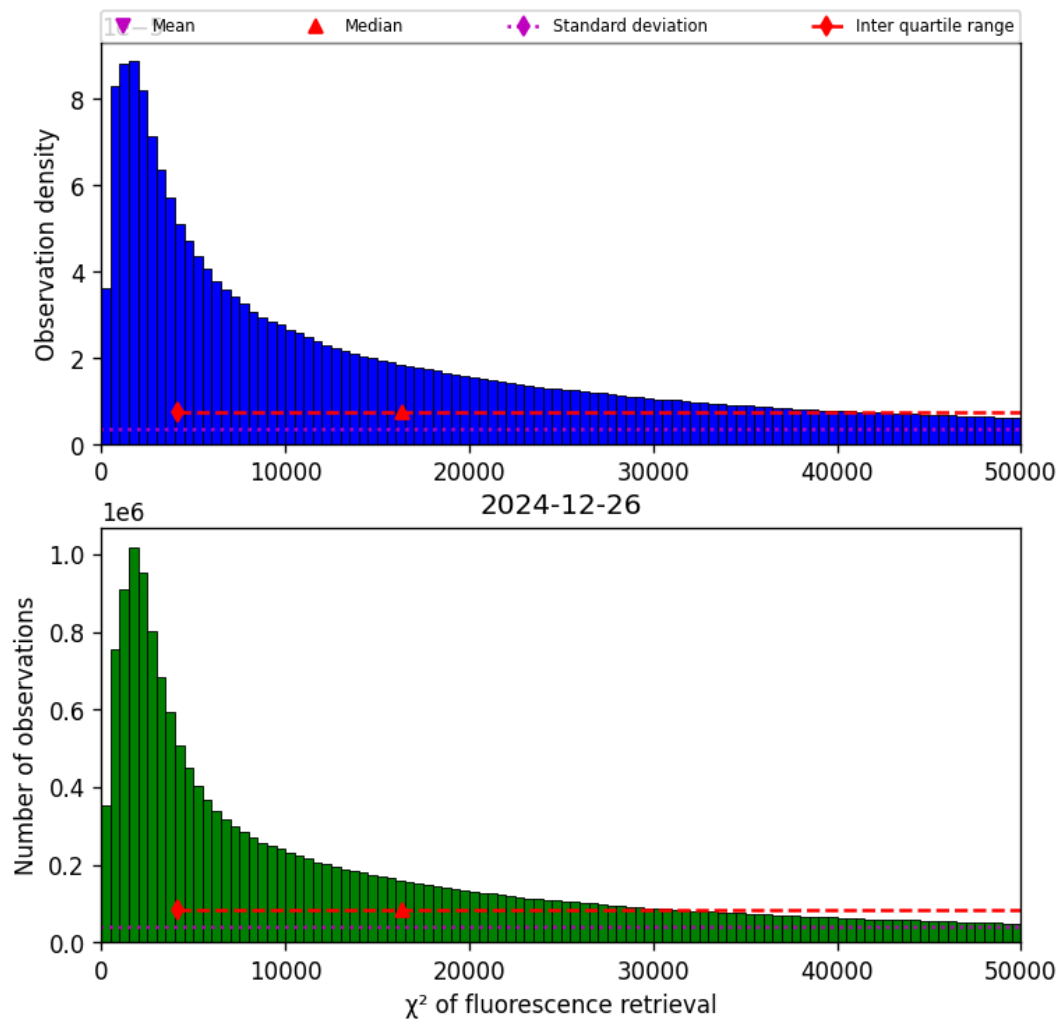


Figure 40: Histogram of “ χ^2 of fluorescence retrieval” for 2024-12-26 to 2024-12-27

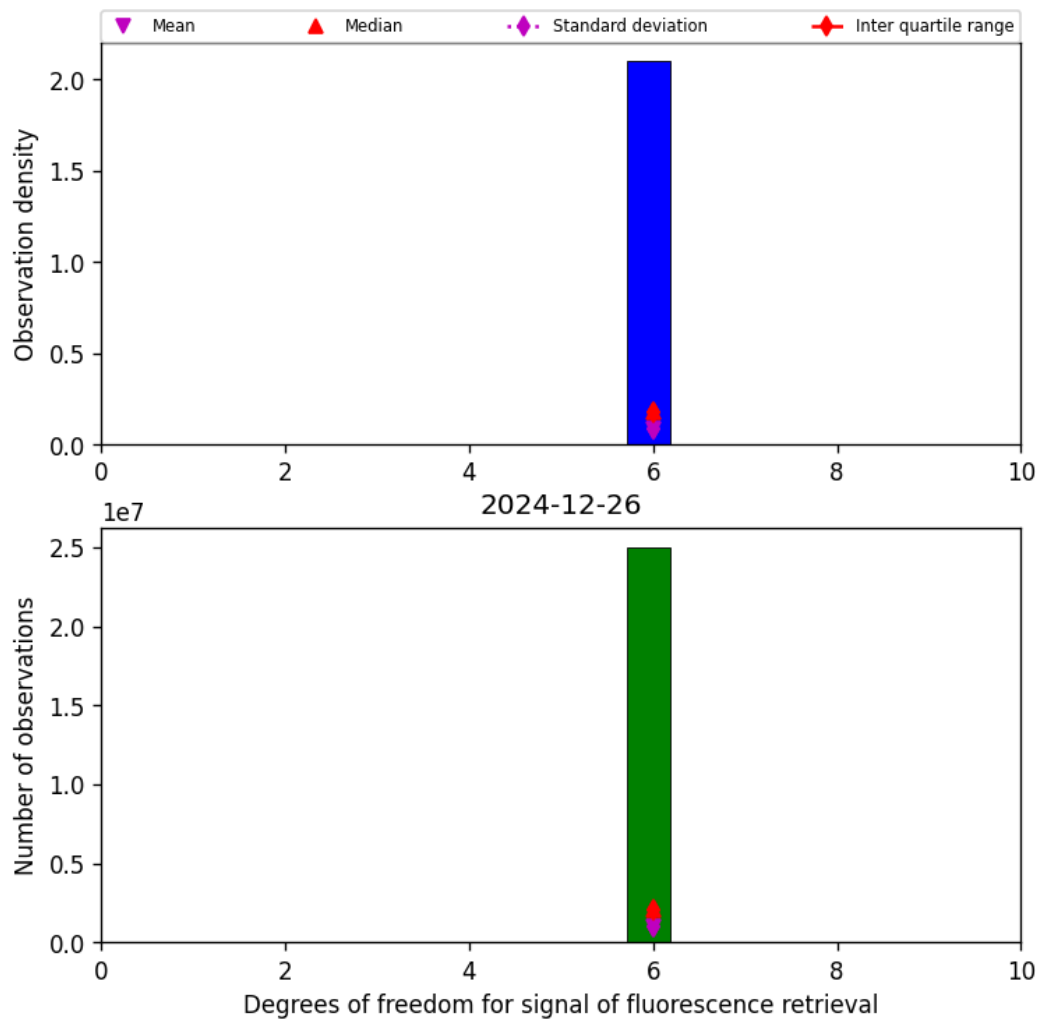


Figure 41: Histogram of “Degrees of freedom for signal of fluorescence retrieval” for 2024-12-26 to 2024-12-27

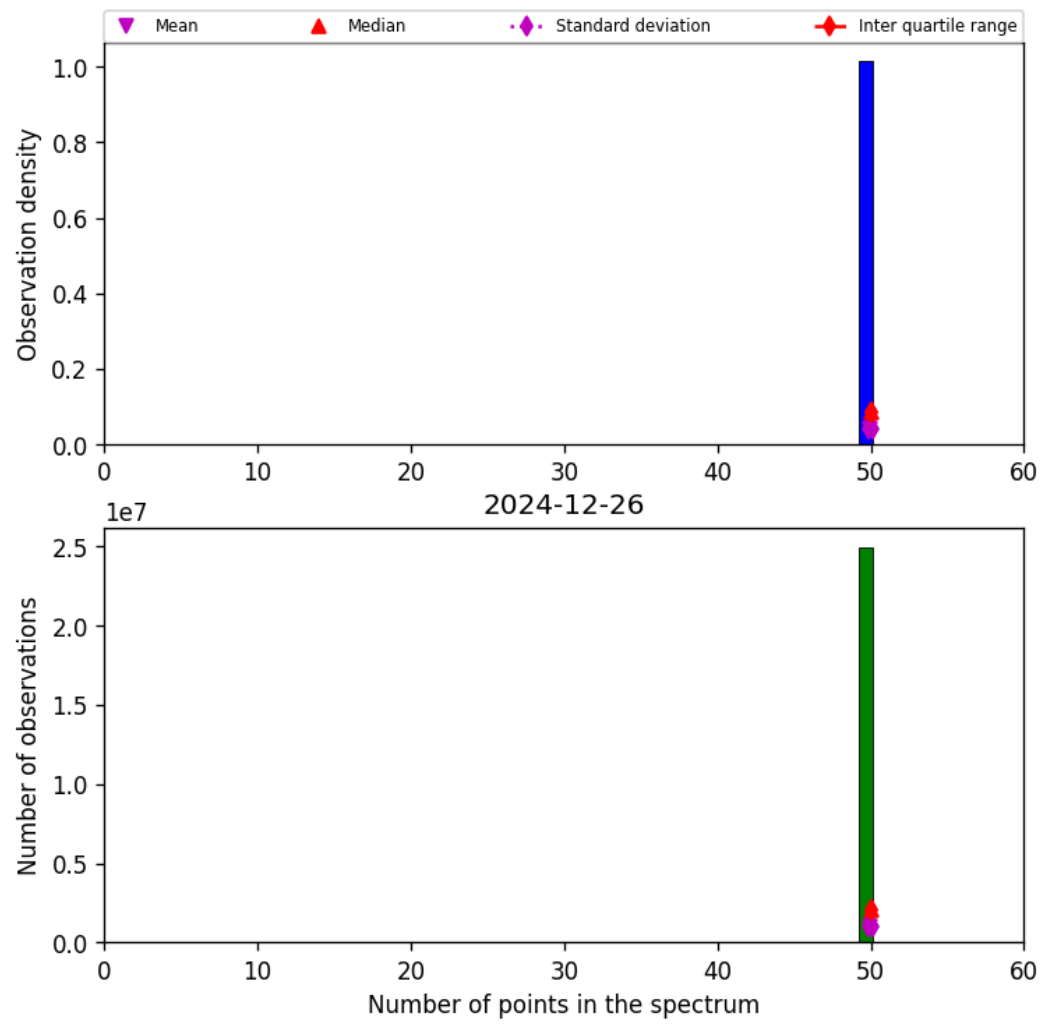


Figure 42: Histogram of “Number of points in the spectrum” for 2024-12-26 to 2024-12-27

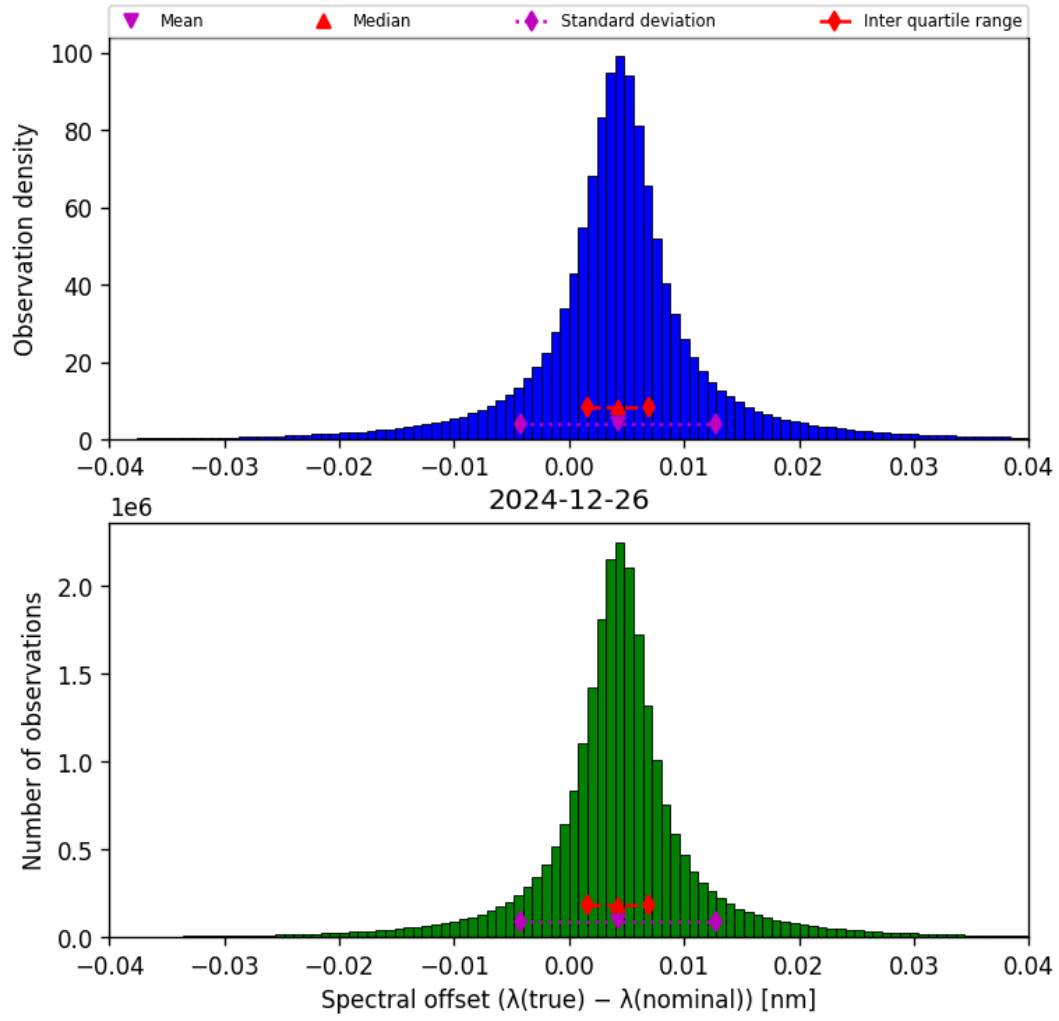


Figure 43: Histogram of “Spectral offset ($\lambda_{\text{true}} - \lambda_{\text{nominal}}$)” for 2024-12-26 to 2024-12-27

9 Along track statistics

The TROPOMI instrument uses different binned detector rows for different viewing directions. In this section statistics are presented for each of the binned rows in the instrument.

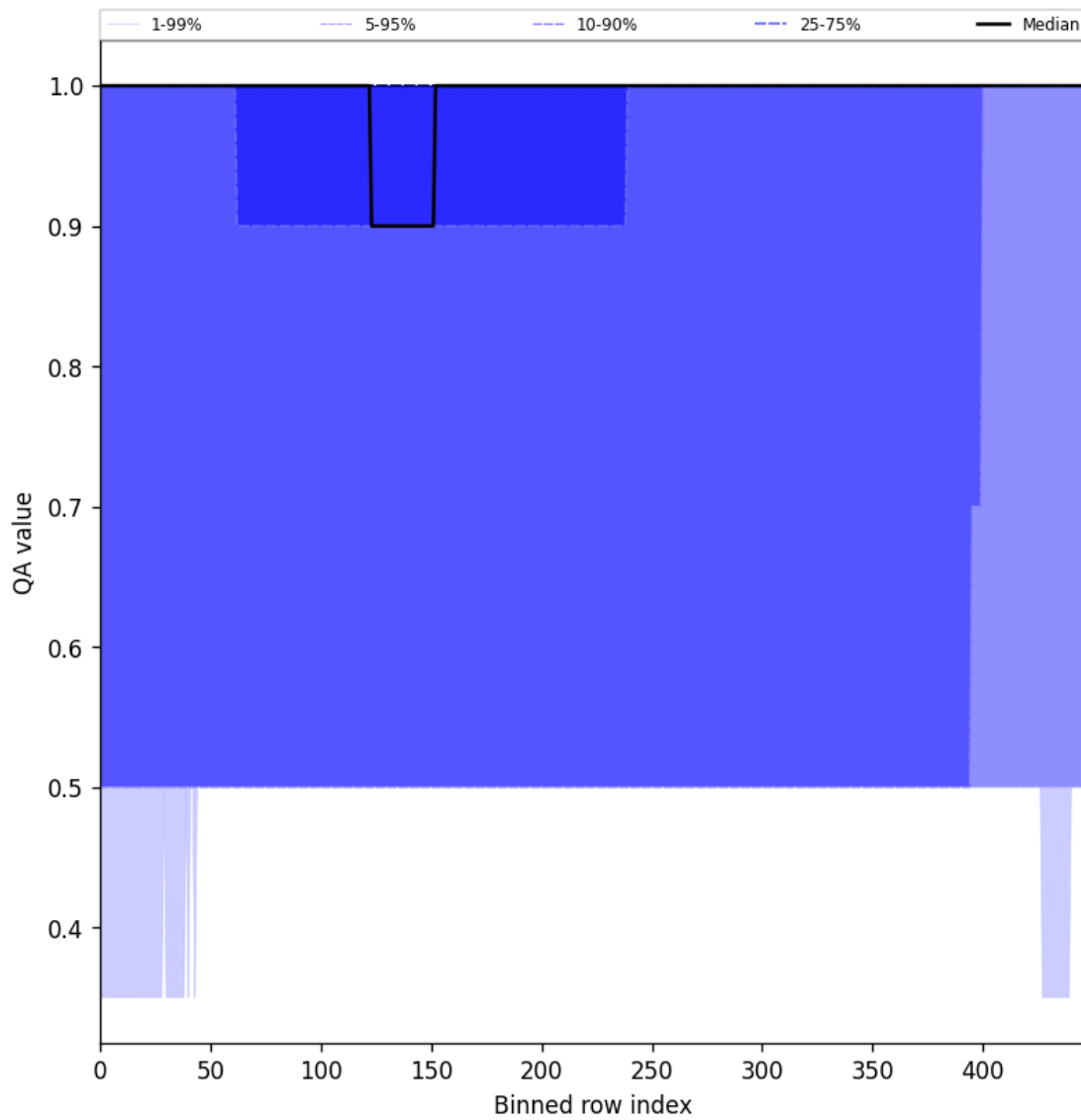


Figure 44: Along track statistics of “QA value” for 2024-12-26 to 2024-12-27

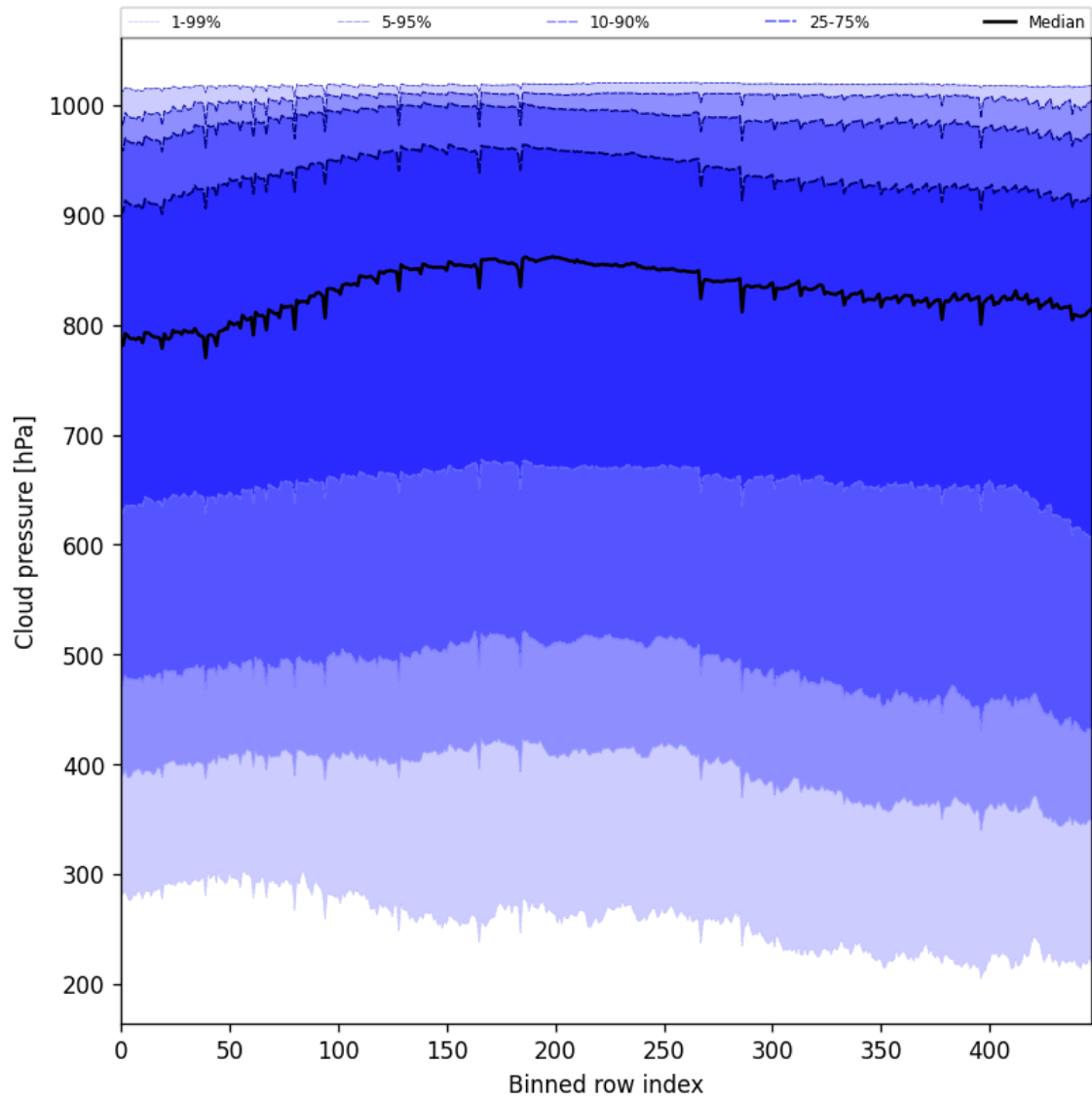


Figure 45: Along track statistics of “Cloud pressure” for 2024-12-26 to 2024-12-27

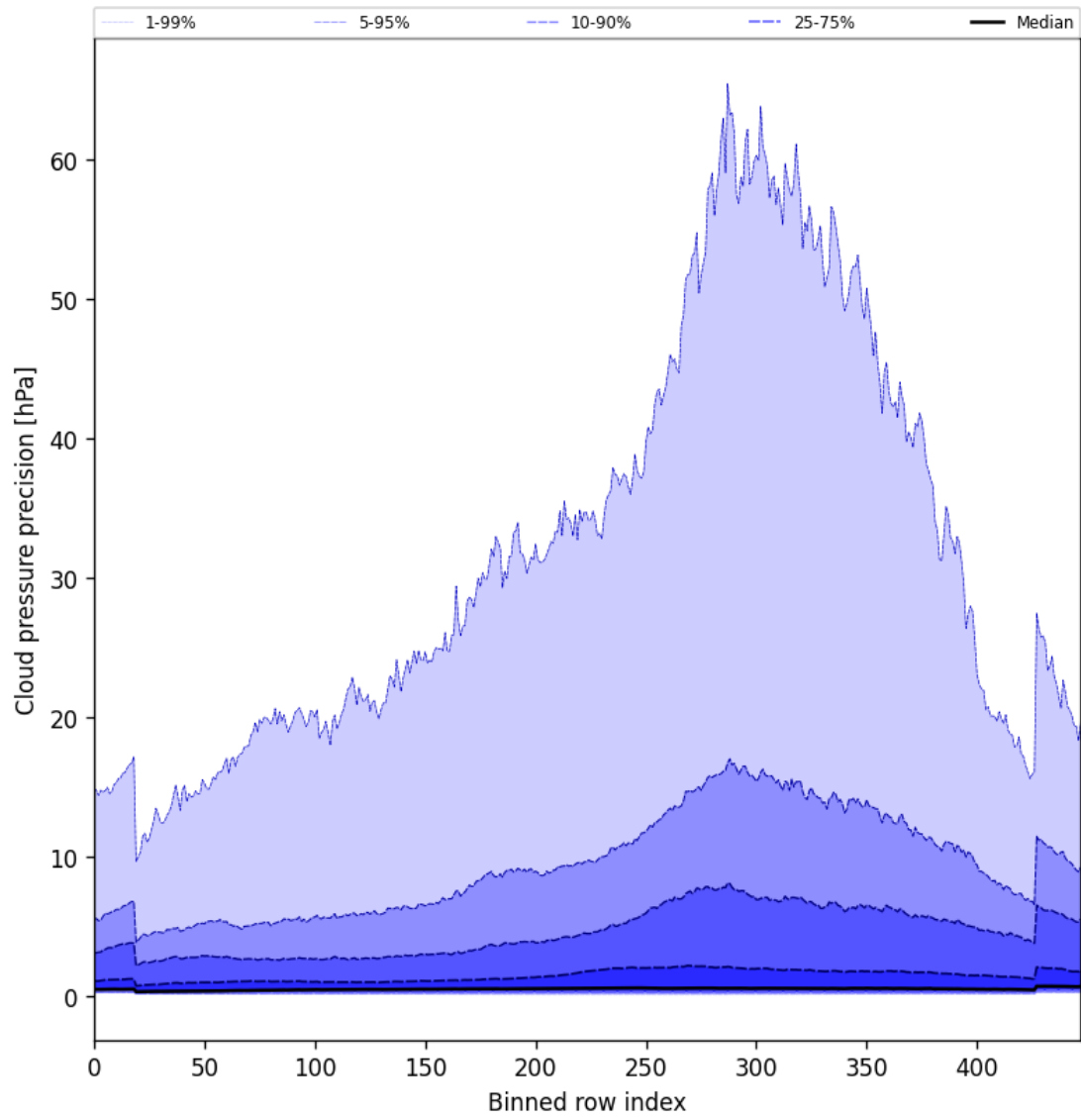


Figure 46: Along track statistics of “Cloud pressure precision” for 2024-12-26 to 2024-12-27

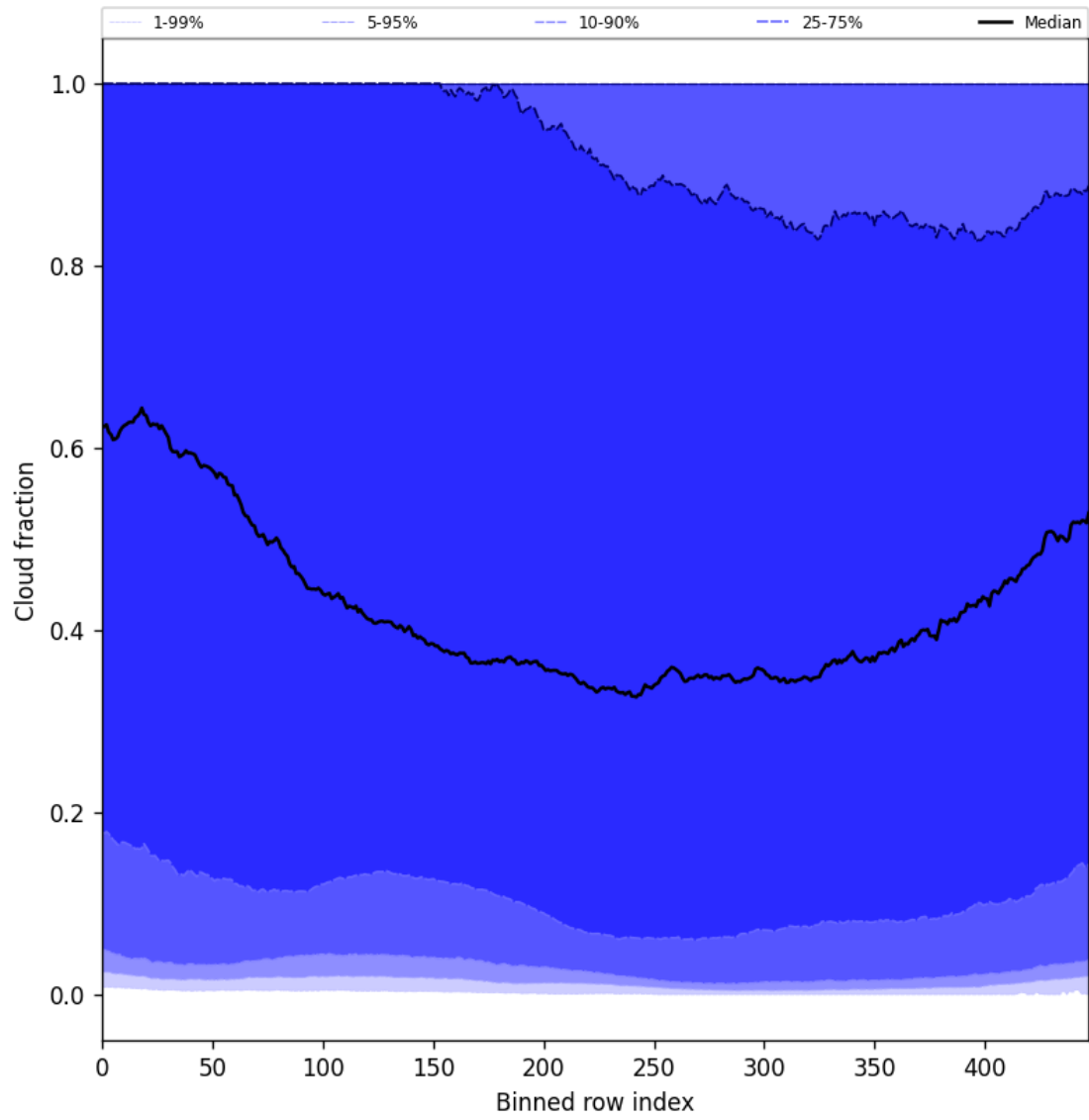


Figure 47: Along track statistics of “Cloud fraction” for 2024-12-26 to 2024-12-27

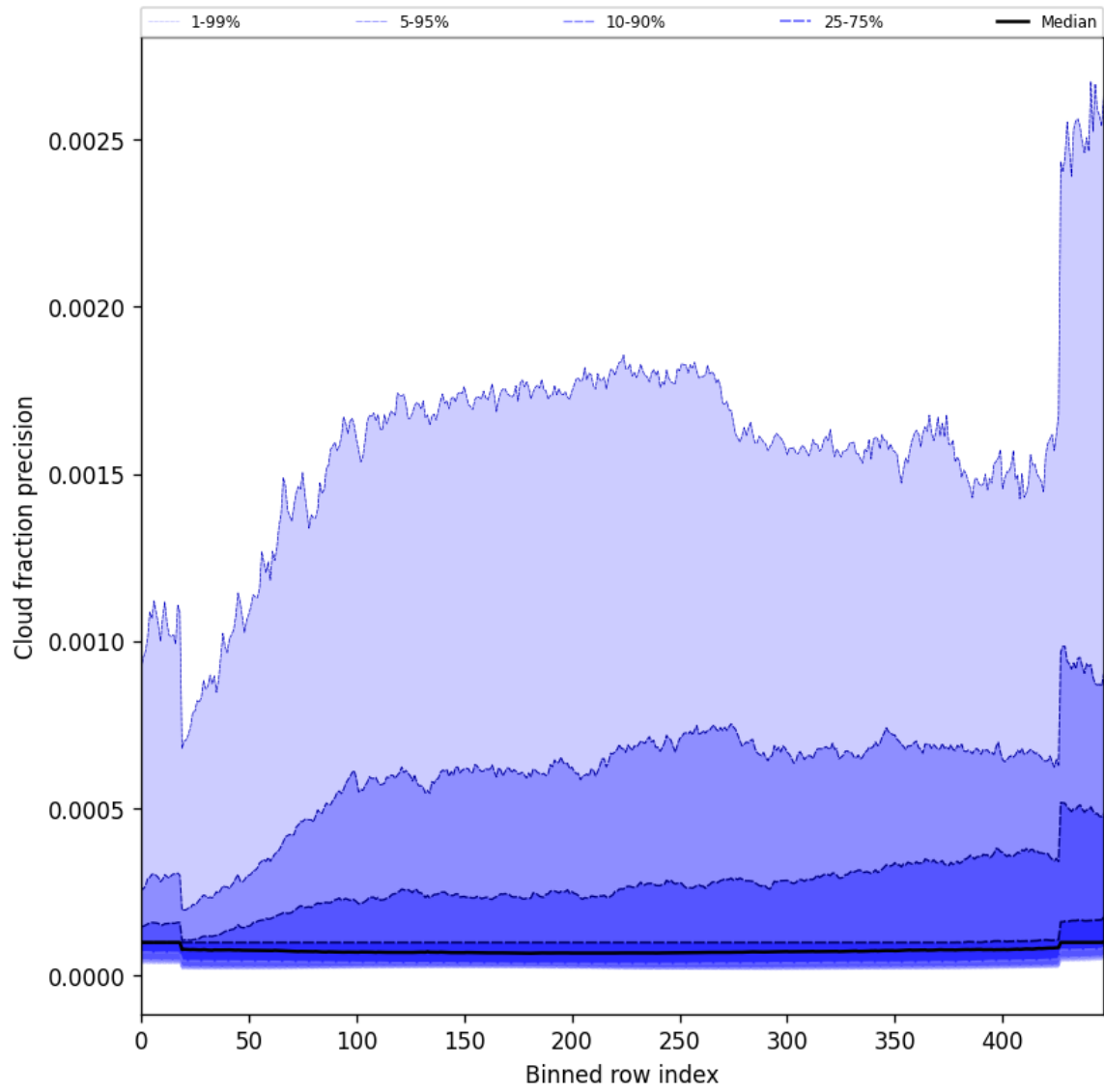


Figure 48: Along track statistics of “Cloud fraction precision” for 2024-12-26 to 2024-12-27

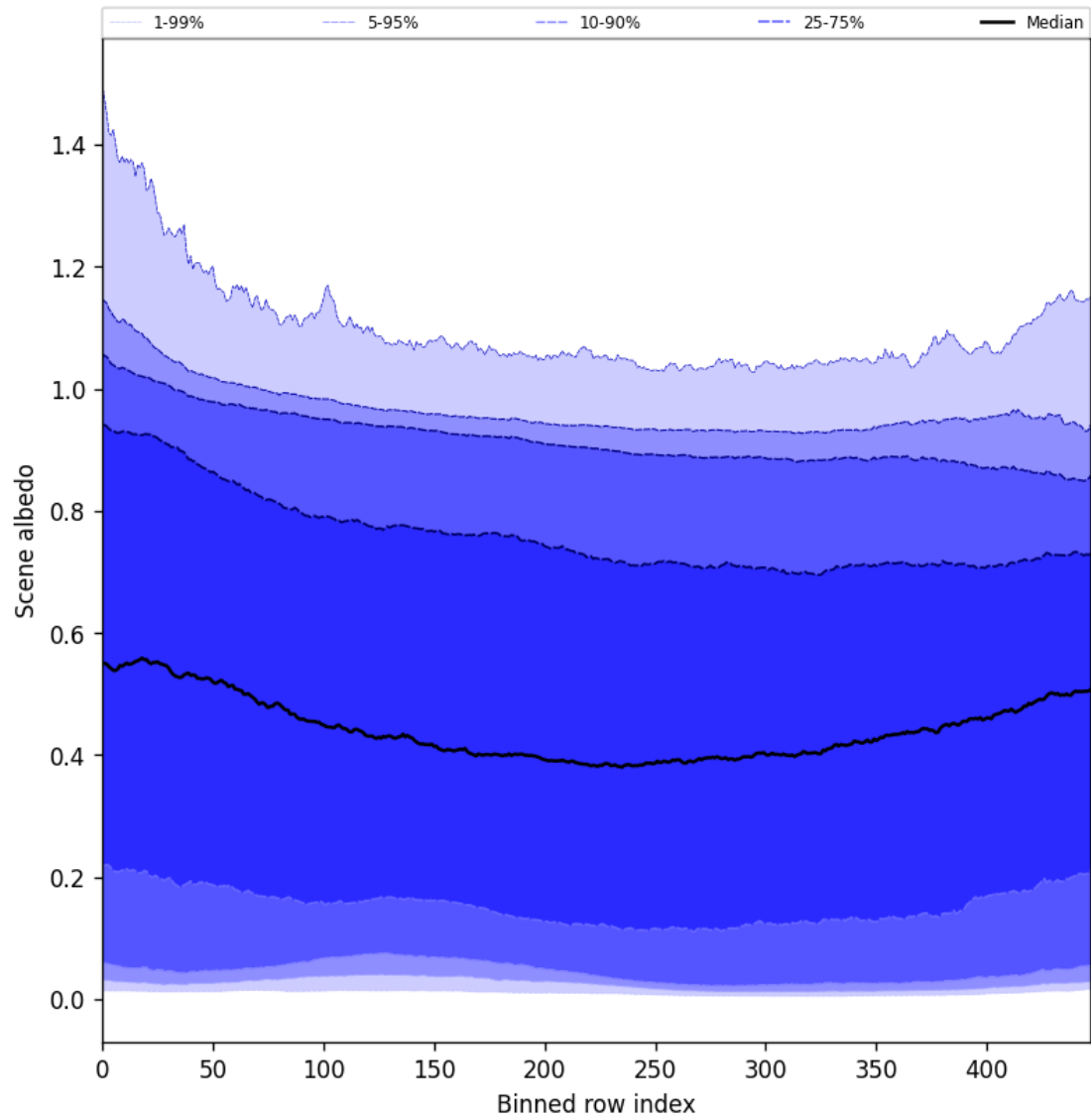


Figure 49: Along track statistics of “Scene albedo” for 2024-12-26 to 2024-12-27

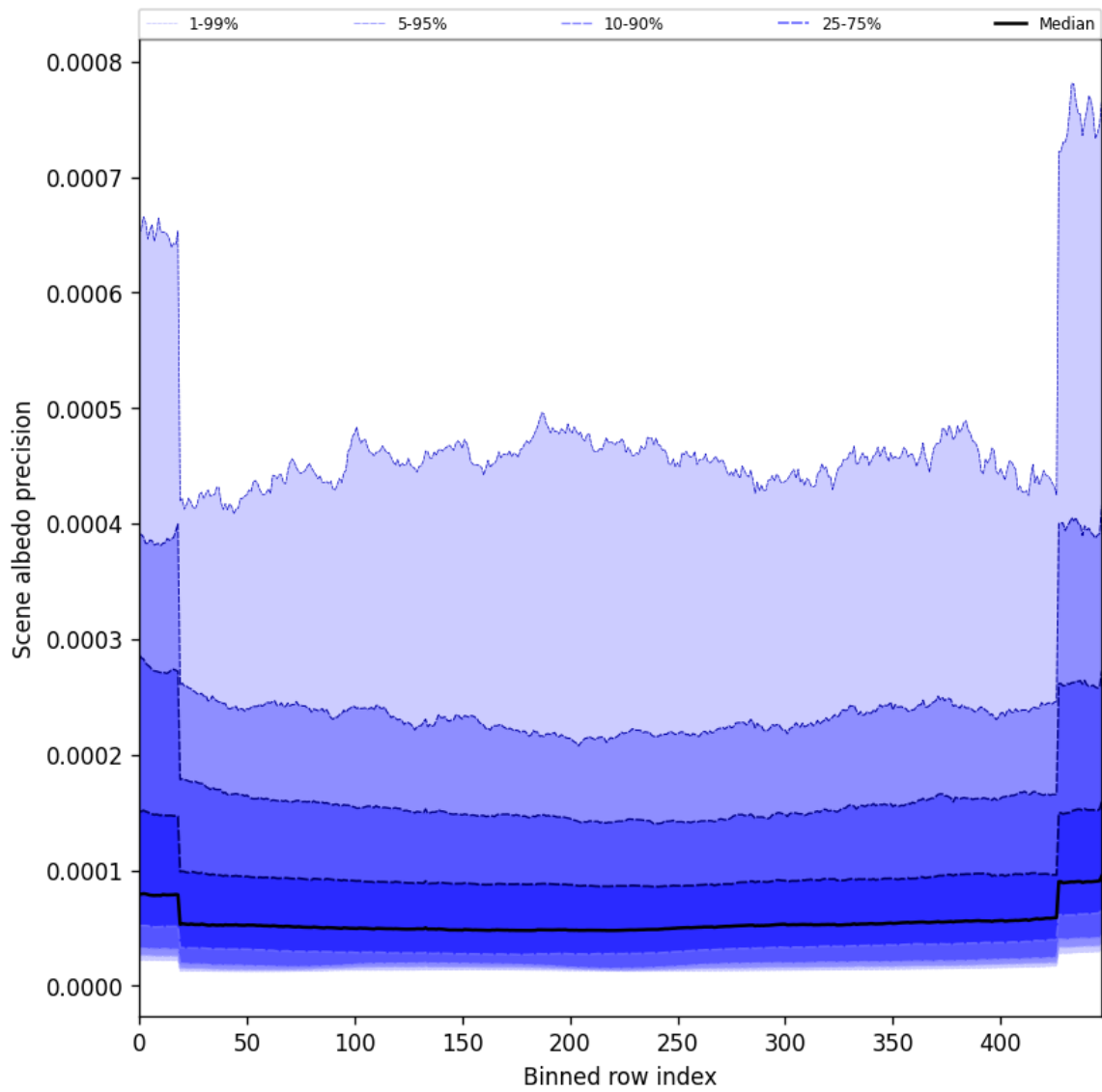


Figure 50: Along track statistics of “Scene albedo precision” for 2024-12-26 to 2024-12-27

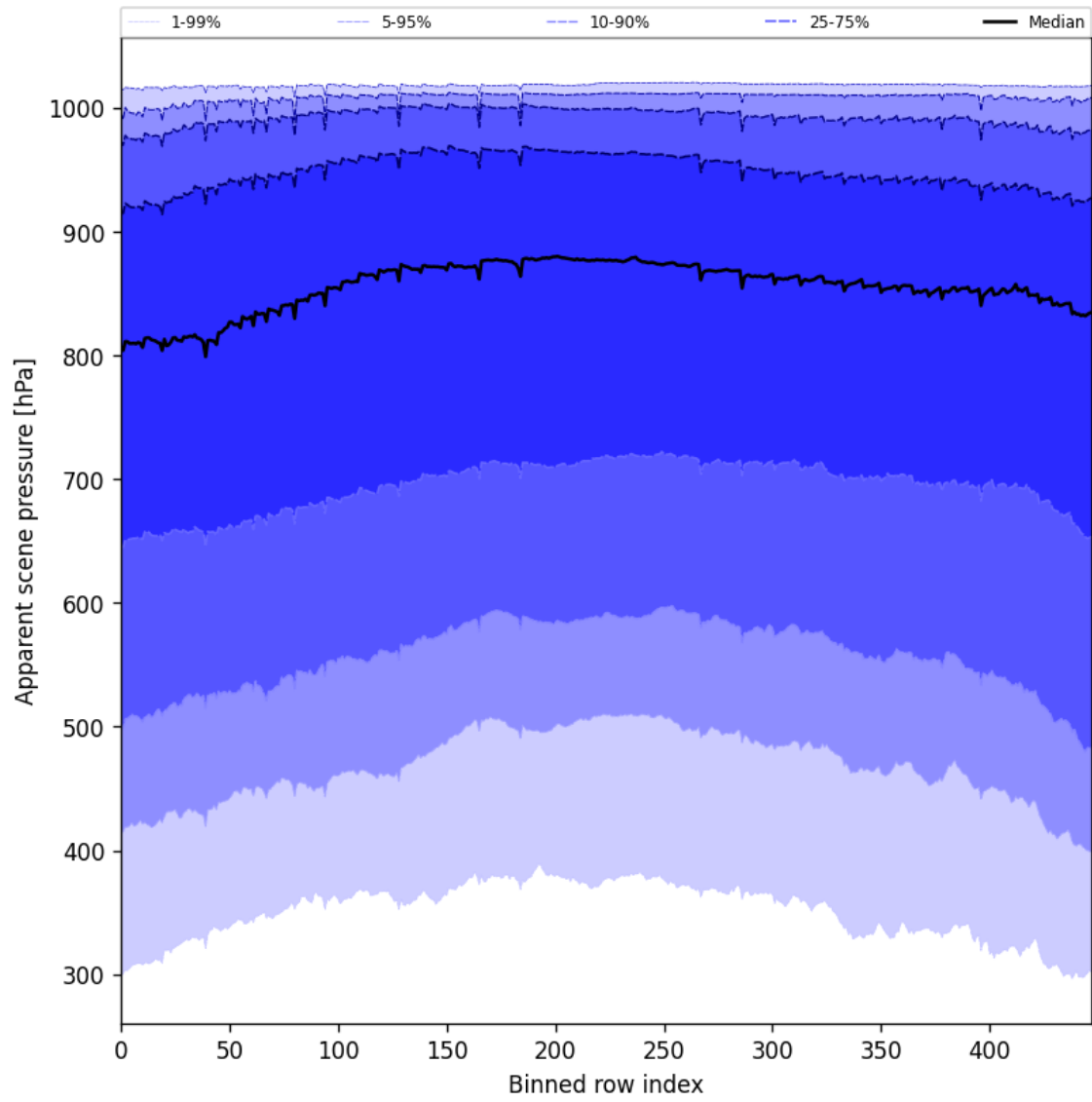


Figure 51: Along track statistics of “Apparent scene pressure” for 2024-12-26 to 2024-12-27

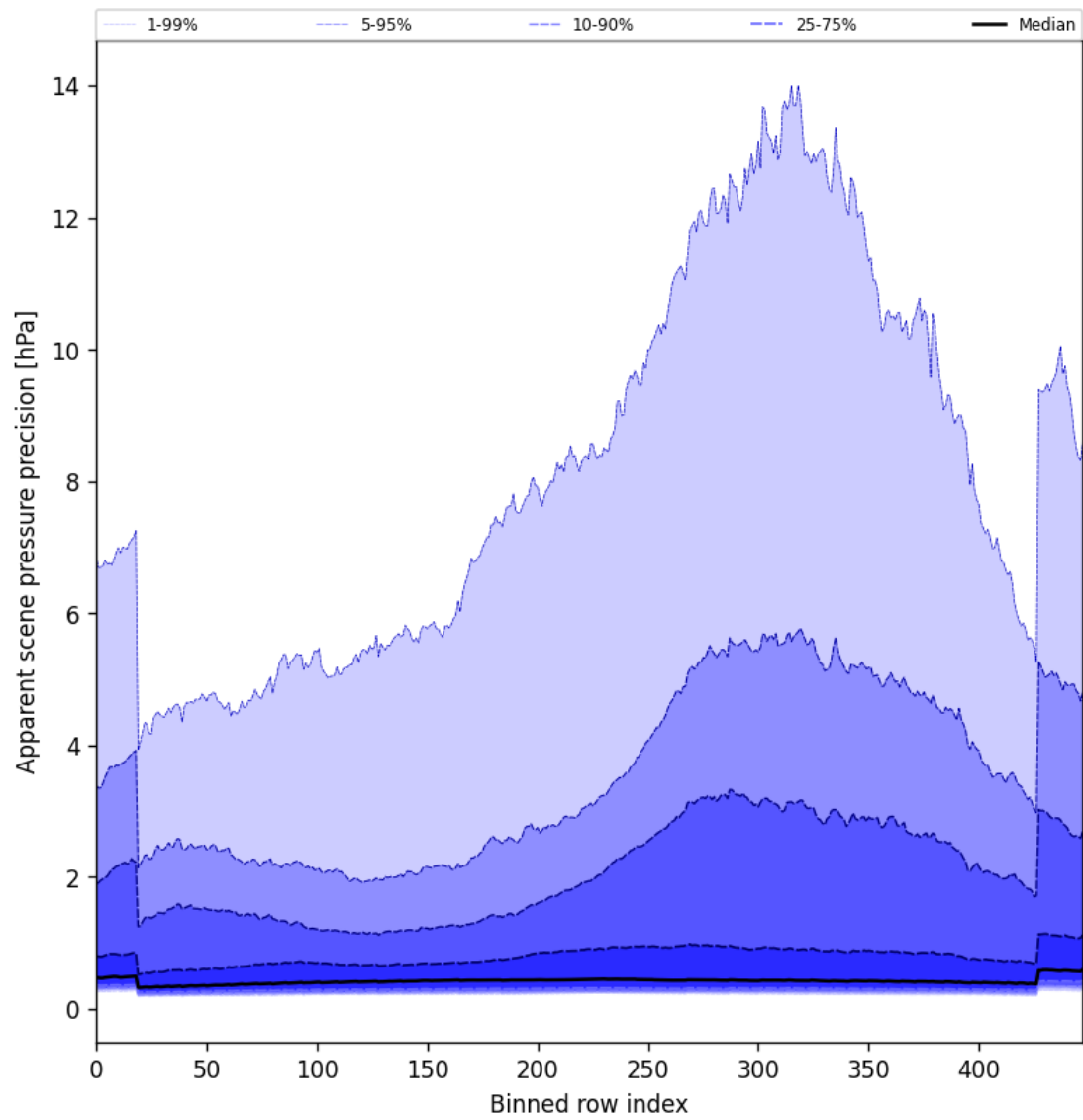


Figure 52: Along track statistics of “Apparent scene pressure precision” for 2024-12-26 to 2024-12-27

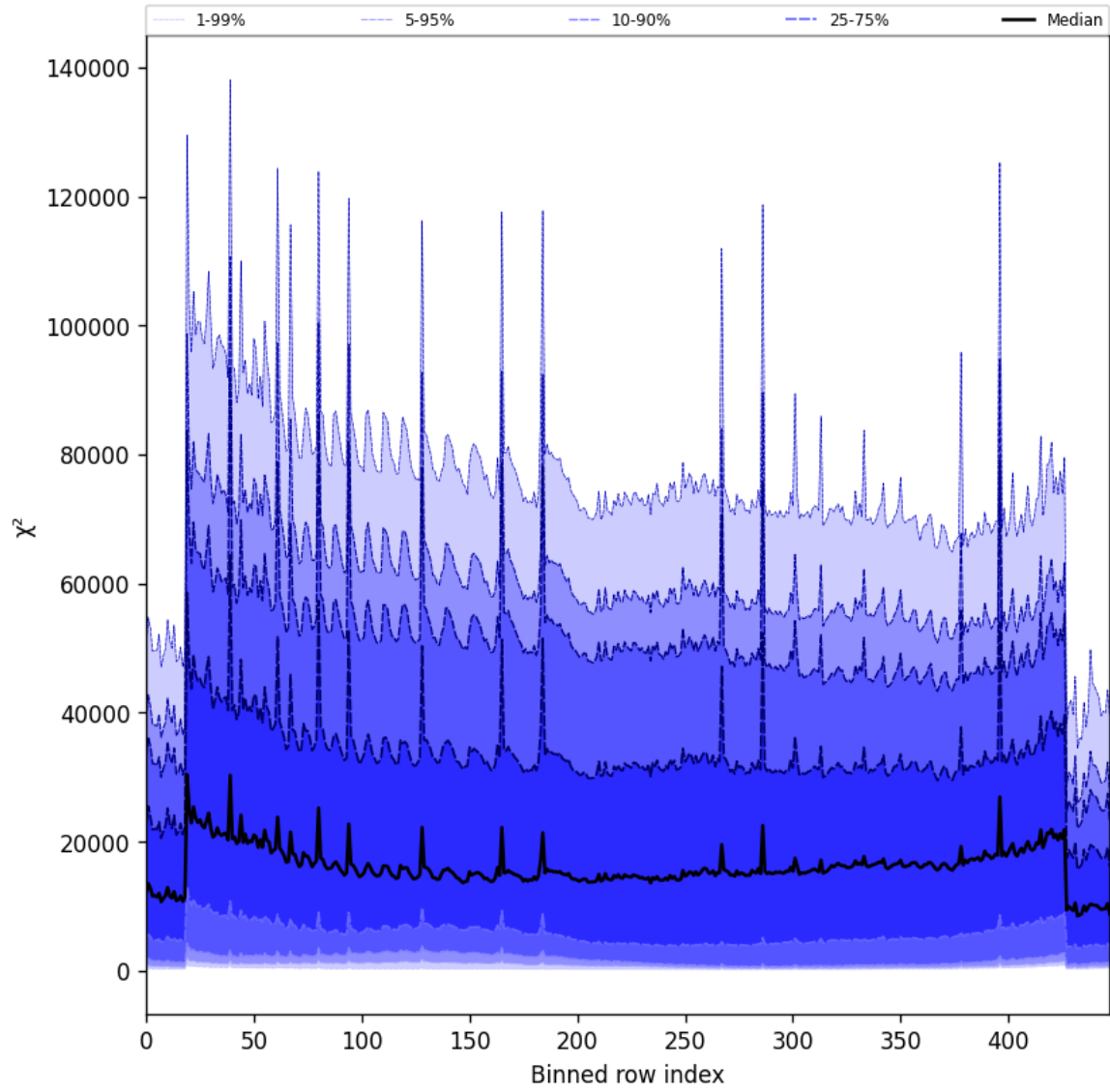


Figure 53: Along track statistics of “ χ^2 ” for 2024-12-26 to 2024-12-27

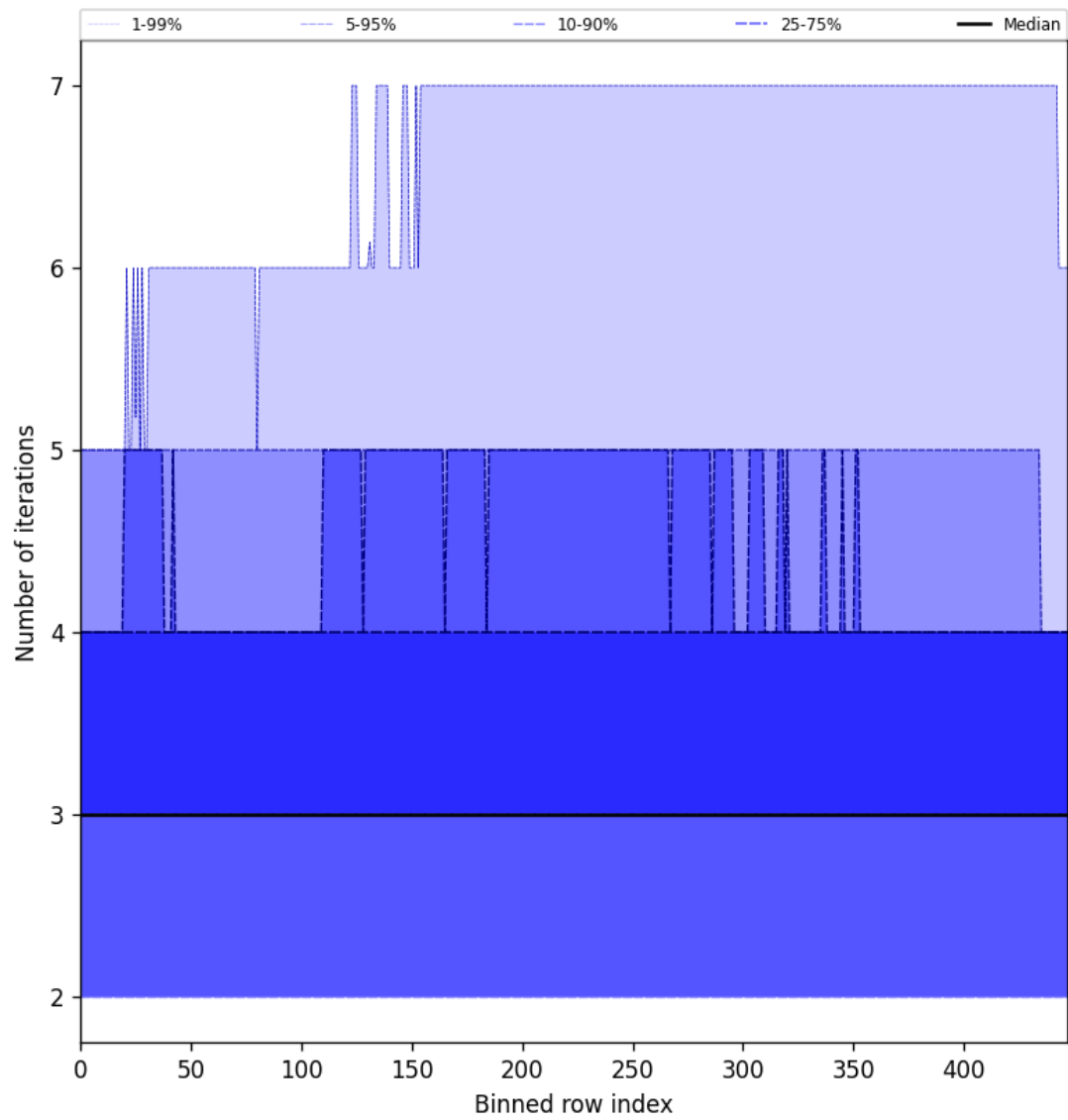


Figure 54: Along track statistics of “Number of iterations” for 2024-12-26 to 2024-12-27

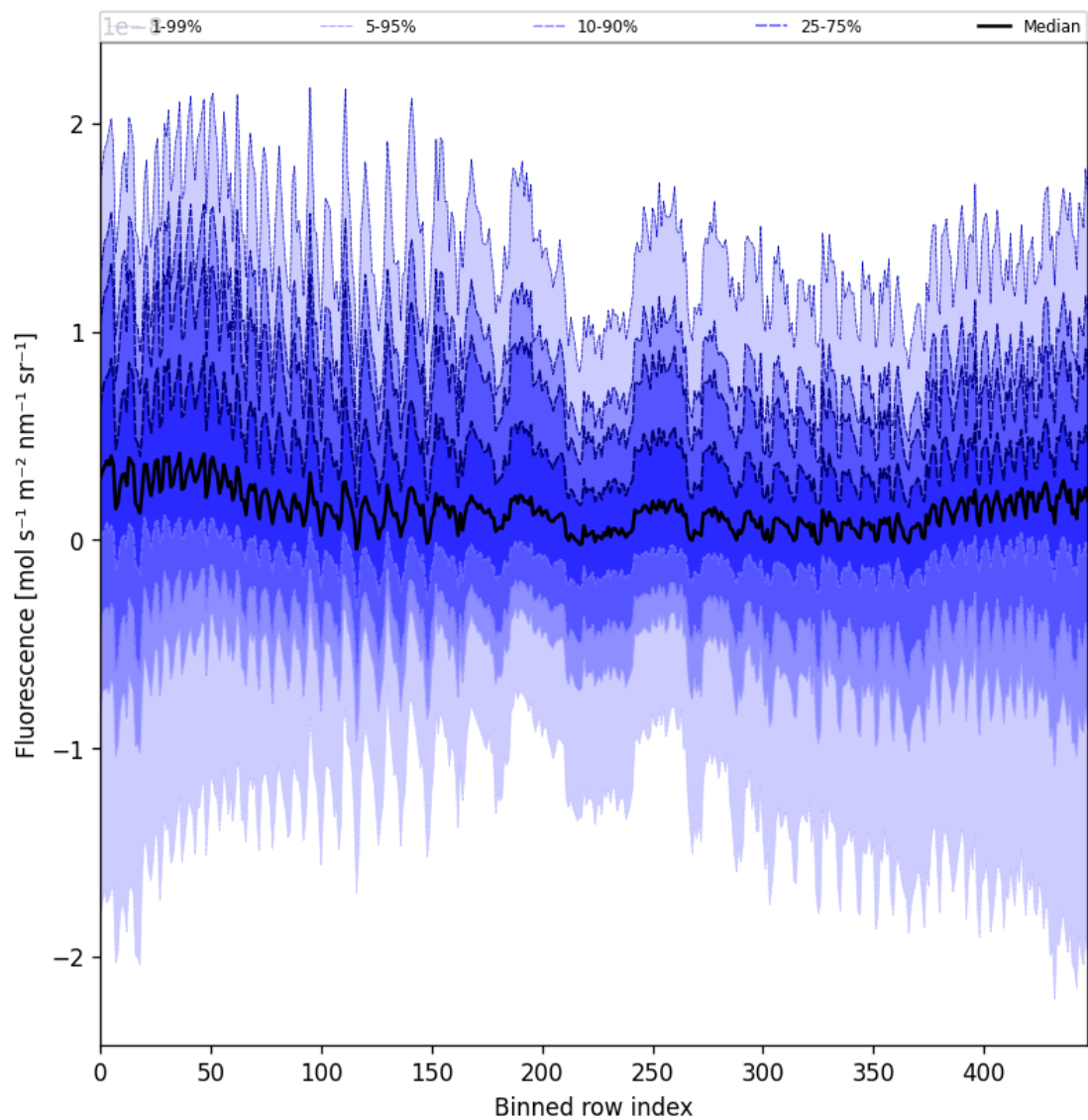


Figure 55: Along track statistics of “Fluorescence” for 2024-12-26 to 2024-12-27

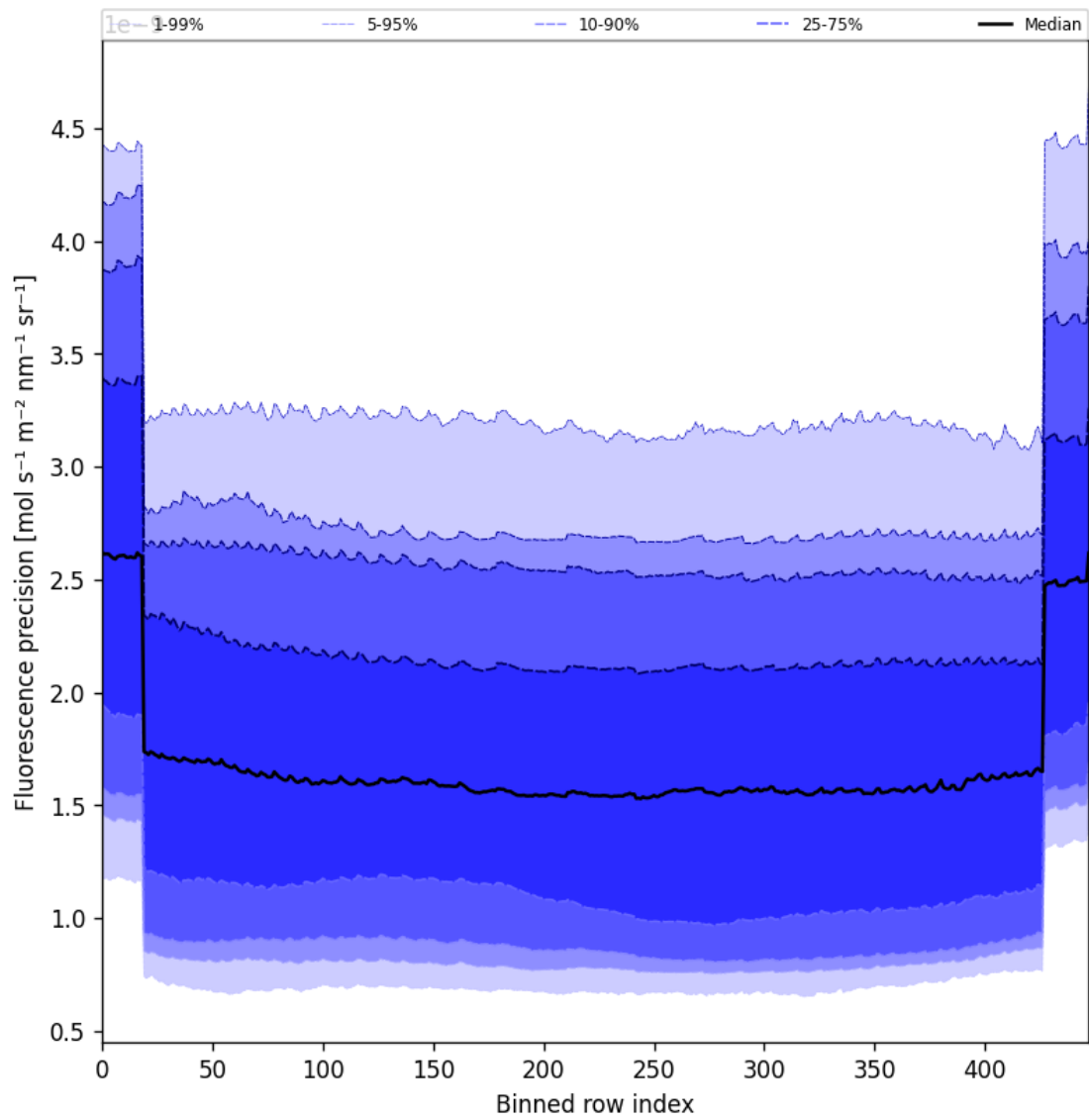


Figure 56: Along track statistics of “Fluorescence precision” for 2024-12-26 to 2024-12-27

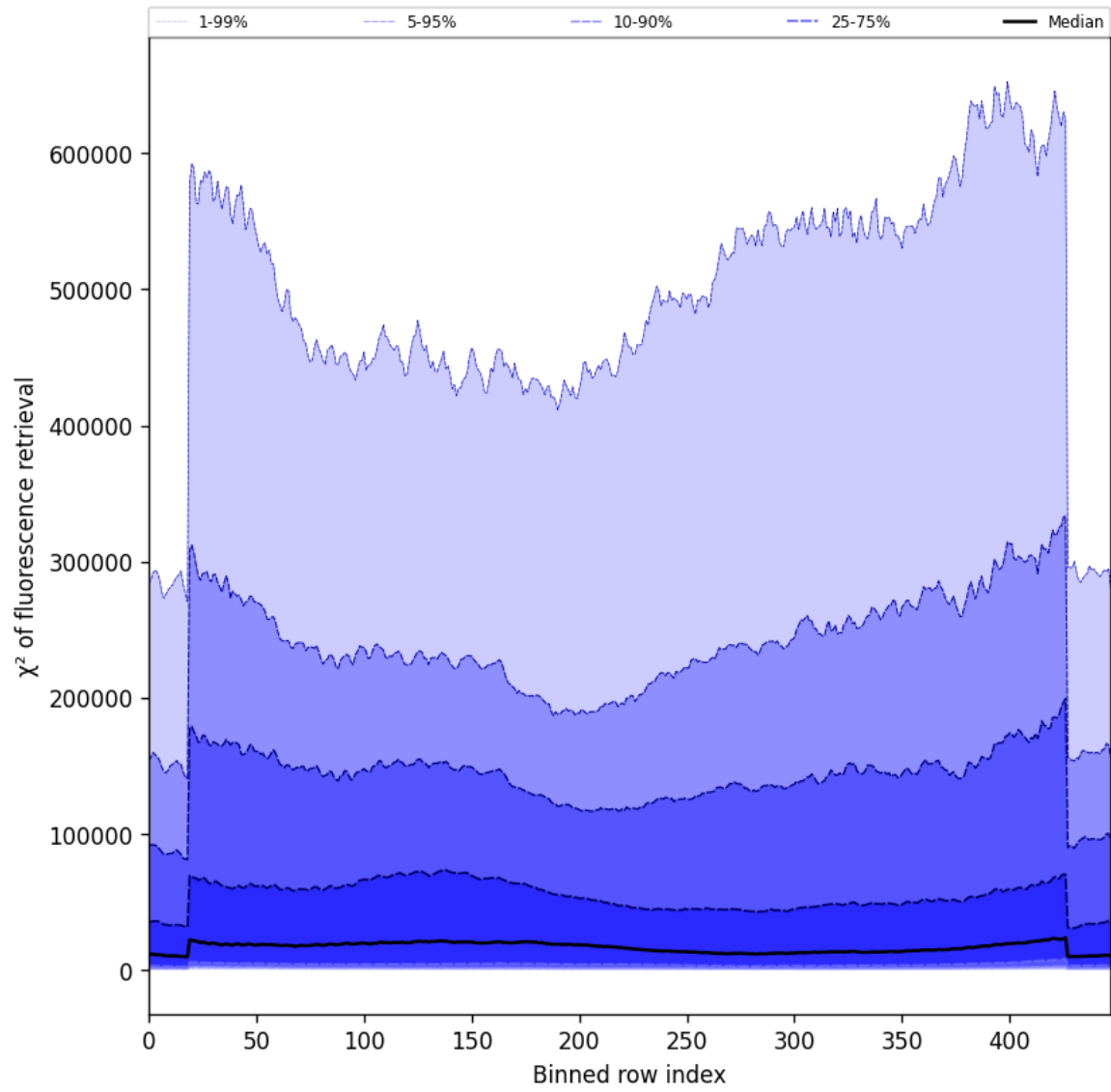


Figure 57: Along track statistics of “ χ^2 of fluorescence retrieval” for 2024-12-26 to 2024-12-27



Figure 58: Along track statistics of “Degrees of freedom for signal of fluorescence retrieval” for 2024-12-26 to 2024-12-27



Figure 59: Along track statistics of “Number of points in the spectrum” for 2024-12-26 to 2024-12-27

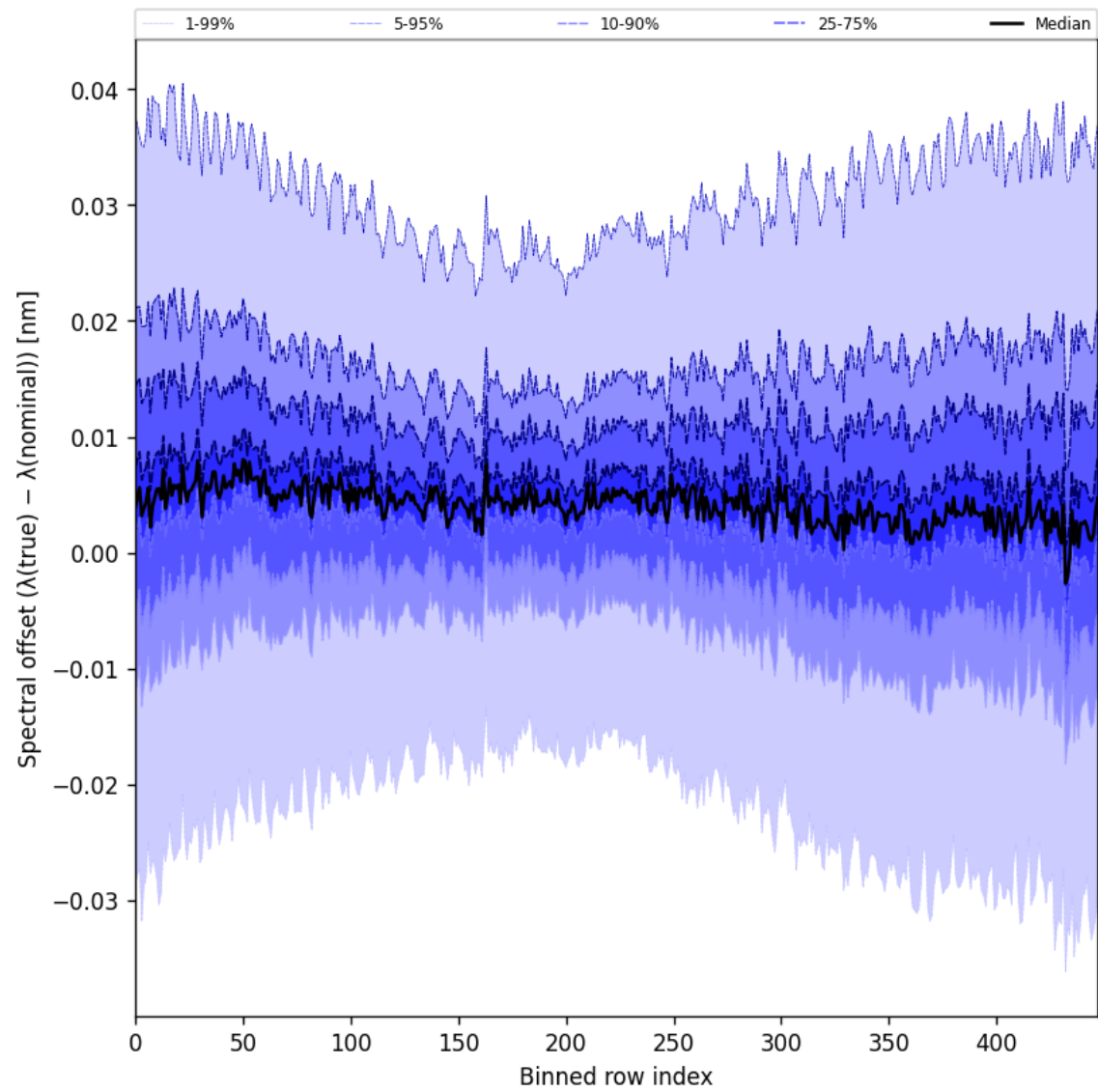


Figure 60: Along track statistics of “Spectral offset ($\lambda_{\text{true}} - \lambda_{\text{nominal}}$)” for 2024-12-26 to 2024-12-27

10 Coincidence density

To investigate the relation between parameters scatter density plots are produced. These include some ‘hidden’ parameters, latitude and the solar- and viewing geometries, in addition to all configured parameters. All combinations of pairs of parameters are included *once*, in one direction alone.

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